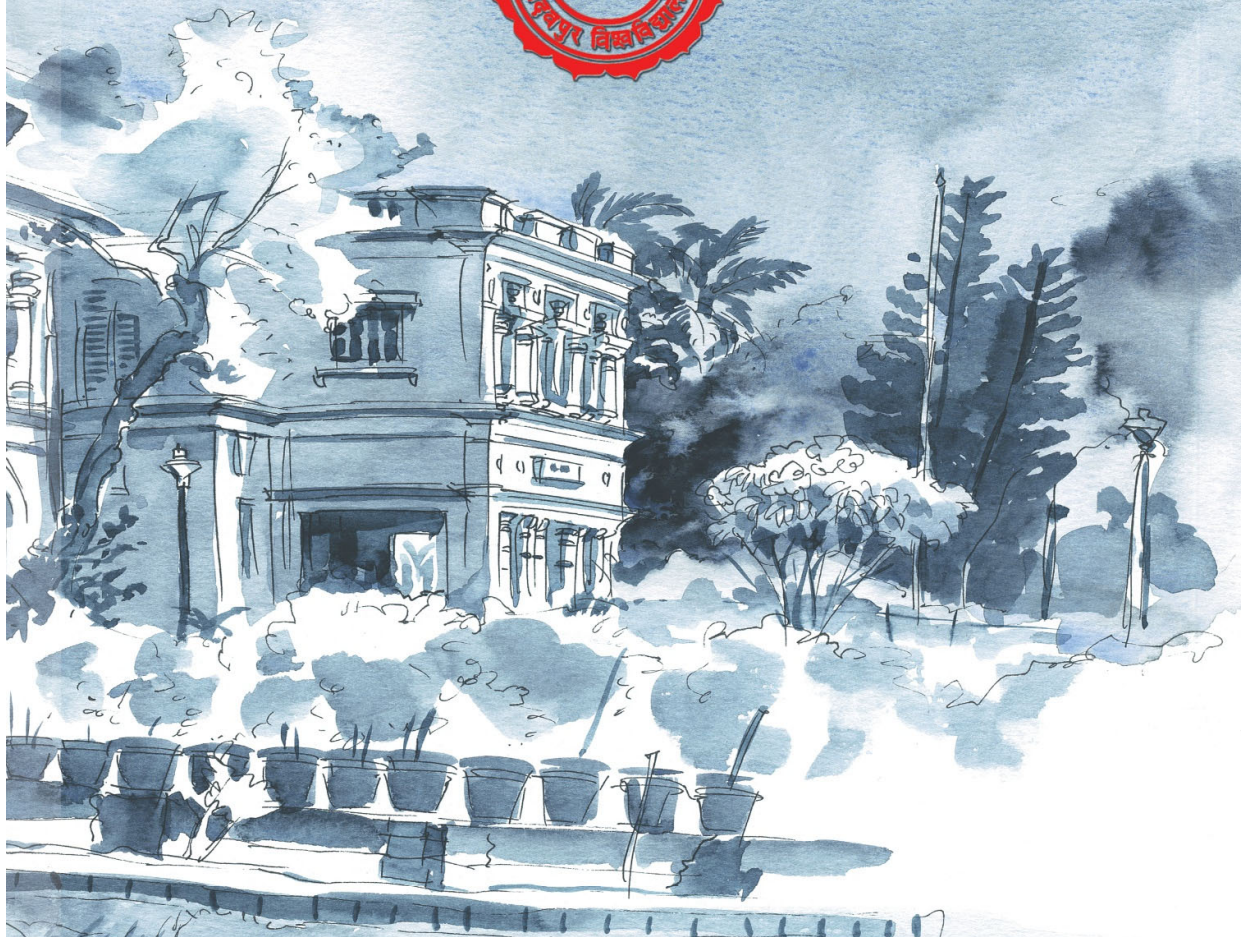


# JADAVPUR UNIVERSITY



## ANNUAL REPORT 2020-2021

[www.jaduniv.edu.in](http://www.jaduniv.edu.in)

<https://jadavpuruniversity.in>

Annual Report 2020-2021

# ANNUAL REPORT

(APRIL 2020-MARCH 2021)

যাদবপুর বিশ্ববিদ্যালয়



**JADAVPUR UNIVERSITY**  
KOLKATA 700032  
INDIA

**Annual Report 2020-2021**

**ANNUAL REPORT 2020-2021**  
**JADAVPUR UNIVERSITY**  
**KOLKATA 700032**

**COVER DESIGN : BISWAJIT MISHRA**

**PUBLISHED BY DR. SNEHAMANJU BASU, REGISTRAR**  
**JADAVPUR UNIVERSITY**  
**PRINTED BY SRI PIJUSH KUNDU, FOREMAN**  
**AT**  
**JADAVPUR UNIVERSITY PRESS (PRINTING)**

## Annual Report 2020-2021

### CONTENTS

PREFACE OF VICE-CHANCELLOR	07
MESSAGE OF PRO-VICE-CHANCELLOR (PROF. CHIRANJIB BHATTACHARJEE)	08
MESSAGE OF PRO-VICE-CHANCELLOR (PROF. SAMANTAK DAS)	09
<b>SECTION A: ADMINISTRATIVE PROFILE</b>	
GENERAL INFORMATION OF JADAVPUR UNIVERSITY	11
VISION AND MISSION	17
COURSES OFFERED	18
UNIVERSITY OFFICERS	23
MEMBERS OF THE EXECUTIVE COUNCIL	24
CENTRAL LIBRARY	29
MEMORANDUM OF UNDERSTANDING	32
NEW PROJECTS	33
OFFICE OF THE DEAN OF STUDENTS	45
OFFICE OF THE DIRECTOR OF PHYSICAL INSTRUCTION (SPORTS BOARD)	49
OFFICE OF THE DIRECTOR OF YOUTH WELFARE	51
OFFICE OF THE FINANCE OFFICER	55
SC/ST/OBC CELL	56
FACULTY PROFILE	57
<b>SECTION B: ACADEMIC REPORT</b>	
ACHIEVEMENTS OF PROF. CHIRANJIB BHATTACHARJEE, PRO-V.C.	73
<b>FACULTY COUNCIL OF ARTS: DEPARTMENTS</b>	
BENGALI	77
COMPARATIVE LITERATURE	85
ECONOMICS	98
EDUCATION	106
ENGLISH	112
FILM STUDIES	138
HISTORY	152
INTERNATIONAL RELATIONS	166
LIBRARY & INFORMATION SCIENCE	178
PHILOSOPHY	182
PHYSICAL EDUCATION	199
SANSKRIT	211
SOCIOLOGY	221
<b>FACULTY COUNCIL OF ENGINEERING &amp; TECHNOLOGY: DEPARTMENTS</b>	
ARCHITECTURE	230
CHEMICAL ENGINEERING	238
CIVIL ENGINEERING	253
COMPUTER SCIENCE & ENGINEERING	265
CONSTRUCTION ENGINEERING	296
ELECTRICAL ENGINEERING	305
ELECTRONICS & TELECOMMUNICATION ENGINEERING	336
FOOD TECHNOLOGY & BIOCHEMICAL ENGINEERING	381
INFORMATION TECHNOLOGY	391
INSTRUMENTATION & ELECTRONICS ENGINEERING	405
MECHANICAL ENGINEERING	413

## Annual Report 2020-2021

METALLURGICAL & MATERIAL ENGINEERING	435
PHARMACEUTICAL TECHNOLOGY	441
POWER ENGINEERING	453
PRINTING ENGINEERING	467
PRODUCTION ENGINEERING	469
<b>FACULTY COUNCIL OF SCIENCE: DEPARTMENTS</b>	
CHEMISTRY	478
GEOGRAPHY	512
GEOLOGICAL SCIENCES	518
INSTRUMENTATION SCIENCE	531
LIFE SCIENCE & BIO-TECHNOLOGY	533
MATHEMATICS	541
PHYSICS	556
ACHIEVEMENTS OF DR. ATISKUMAR CHATTOPADHYAY, PRINCIPAL SECRETARY, FACULTY COUNCIL OF SCIENCE	577
<b>FACULTY COUNCIL OF INTERDISCIPLINARY STUDIES, LAW &amp; MANAGEMENT</b>	
<b>A. DEPARTMENT</b>	
ADULT, CONTINUING EDUCATION & EXTENSION	581
<b>B. INTERDISCIPLINARY SCHOOL</b>	
ADVANCED STUDIES ON INDUSTRIAL POLLUTION CONTROL ENGINEERING	585
AUTOMOTIVE ENGINEERING	587
BIOSCIENCE & ENGINEERING	593
COGNITIVE SCIENCE	599
CULTURAL TEXTS & RECORDS	602
EDUCATION TECHNOLOGY	605
ENERGY STUDIES	609
ENVIRONMENTAL STUDIES	613
ILLUMINATION SCIENCE, ENGINEERING & DESIGN	619
INTERNATIONAL RELATIONS & STRATEGIC STUDIES	621
LANGUAGES & LINGUISTICS	622
LASER SCIENCE & ENGINEERING	632
MATERIAL SCIENCE & NANO TECHNOLOGY	637
MEDIA COMMUNICATION & CULTURE	645
MOBILE COMPUTING & COMMUNICATION	655
NATURAL PRODUCT STUDIES	659
NUCLEAR STUDIES & APPLICATION	674
OCEANOGRAPHIC STUDIES	677
STUDIES IN ENVIRONMENTAL RADIATION & ARCHAEOLOGICAL SCIENCES	686
WATER RESOURCES ENGINEERING	688
WOMEN'S STUDIES	697
<b>C. INTERDISCIPLINARY RESEARCH CENTRE</b>	
AUROBINDO STUDIES CENTRE	704
BUDDHIST STUDIES	705
CANADIAN STUDIES	705
CLINICAL RESEARCH CENTRE	711
COMPUTER AIDED DESIGN CENTRE	714

## Annual Report 2020-2021

CONDENSED MATTER PHYSICS RESEARCH CENTRE	716
COUNSELLING SERVICES & STUDIES IN SELF-DEVELOPMENT	718
C.V. RAMAN CENTRE FOR PHYSICS & MUSIC	721
DISTRIBUTED COMPUTING	724
HUMAN SETTLEMENT PLANNING	726
IC DESIGN & FABRICATION	728
IMPACT CENTRE	742
INDOLOGY	743
KNOWLEDGE BASED SYSTEM	743
LATIN AMERICAN LITERATURE & CULTURE	746
MATHEMATICAL BIOLOGY & ECOLOGY	747
MICROPROCESSOR APPLICATIONS FOR TRAINING EDUCATION AND RESEARCH	752
NUCLEAR & PARTICLE PHYSICS RESEARCH CENTRE	773
PLASMA STUDIES	774
STUDY OF RELIGION & SOCIETY	776
SUSTAINABLE DEVELOPMENT AND RESOURCE EFFICIENCY MANAGEMENT	778
TRANSLATION OF INDIAN LITERATURES (CENTIL)	784
VICTORIAN STUDIES	787
V.RAVI CHANDRAN CENTRE FOR PHARMACEUTICAL SCIENCES	789
WELDING TECHNOLOGY	793
<b>D. SPECIAL PROGRAMME</b>	
GLOBAL CHANGE PROGRAMME	797
JADAVPUR UNIVERSITY PRESS (PUBLICATIONS)	802
J.U.RADIO	807
NATIONAL SERVICE SCHEME (N.S.S.)	809
REGIONAL CENTRE, NATIONAL AFFORESTATION & ECO-DEVELOPMENT BOARD	811
REGIONAL-CUM-FACILITATION CENTRE (EASTERN REGION), NATIONAL MEDICINAL PLANTS BOARD (NMPB)	813
RURAL & CRYOGENIC TECHNOLOGIES	816
SYLFF PROGRAMME	820
UGC-HUMAN RESOURCE DEVELOPMENT CENTRE	822
<b>STUDENT PROFILE</b>	826-837

\*\*\*\*\*



## Annual Report 2020-2021

যাদবপুর বিশ্ববিদ্যালয়

PROFESSOR SURANJAN DAS

M.A.(Cal), D.Phil (Oxon)

VICE-CHANCELLOR

অধ্যাপক সুরঞ্জন দাস

উপাচার্য

E-mail : vc@jadavpuruniversity.in

E-mail : suranjandas2000@yahoo.co.in



JADAVPUR UNIVERSITY

188, RAJA S.C. MALLIK ROAD

KOLKATA-700 032, INDIA

Phone : +91-33-2414-6000 (O)

Fax : + 91-33-2413-7121 (O)

OFFICE OF THE VICE-CHANCELLOR : AUROBINDO BHAVAN ANNEXE

### PREFACE

The year 2021 witnessed the global process of revival from the disruptive impact of the pandemic. The University, too, started returning to normalcy. Teaching-learning process in physical mode began; the campus became lively with co-curricular and extra-curricular activities. It goes to the credit of my colleagues that despite many constraints the University has been able to sustain its quest for excellence, as evident from our positions in national and international rankings. We effectively competed with central higher education institutions despite their better infrastructure facilities. This has been possible because of the dedication, sincerity and team spirit of my colleagues and their ability for optimum utilization of resources. I am also happy to report the incredible performance of our students in inter-university sports and cultural competitions. I congratulate them.

True to the spirit of the rich legacy, the members of the University community responded in their own ways to national and international happenings, remembering what Paulo Freire remarked in his famous tract *Pedagogy of the Oppressed*:

Looking at the past must only be a means of understanding more clearly what and who they are so that they can more wisely build the future.

I should complement and thank for the tireless efforts of the Joint Registrar Dr. Sanjay Gopal Sarkar, the Publication Officer Debarati Sinha Chaudhuri and the staff of the University Press without which the 2021 edition of the Annual Report could not have been compiled and published.

  
Suranjan Das.

## Annual Report 2020-2021

### যাদবপুর বিশ্ববিদ্যালয়

PROF. CHIRANJIB BHATTACHARJEE

Pro-Vice-Chancellor

অধ্যাপক চিরঞ্জীব ভট্টাচার্য

সহ-উপাচার্য



\*JADAVPUR UNIVERSITY

KOLKATA-700 032, INDIA

OFFICE OF THE PRO-VICE-CHANCELLOR : AUROBINDO BHAVAN

### MESSAGE

It is great to know that we are preparing Annual Report for Jadavpur University on the occasion of University Foundation Day, on which usually annual convocation is being held every year. December 24<sup>th</sup> has its own significant for two major reasons, i) Jadavpur University was founded on December 24, 1955, and ii) 24<sup>th</sup> December is also the birth date of the founder Vice-Chancellor of Jadavpur University, Prof. Triguna Sen.

As per my understanding and believes, the Annual Report of an institution is always considered as the mirror image of the institutional growth and progress. The year 2021 was something different from all the earlier years in the context of prevailing worldwide COVID-19 pandemic situation, something like earlier year, 2020. The normal functioning of the University, as well as research activities have got seriously affected because of the restrictions prevailing over the major portion of the calendar year due to COVID-19 pandemic, and with a commitment to maintain the social distancing protocol as prescribed by World Health Organisation (WHO). As per State Government guidelines, we have opened physical classes in staggered/phased manner from November 16, 2021. However, present threat due to spread of Omicron can't be ignored. In many foreign countries, particularly Europe, COVID-19 is still dominating with significant case load per day. Under this circumstances, we have to be very careful and should keep up the guard against COVID-19.

Convocation 2021, which was supposed to be held on 24<sup>th</sup> December, 2021 has been kept in abeyance, instead all the degree certificates are being provided to the candidates directly without organising any degree-awarding ceremony event. I am hopeful, 2022 will be something different and we will be able to go back to normal schedule because of the massive vaccination drive undertaken by the Government.

The progress and achievements of an academic institution like ours is the result of hard work and commitment for the excellence by various stakeholders of the University ecosystem. Apart from academic achievements, this report always provides us the information about our achievements, milestones and major accomplishment and various extra-curricular activities of the university in various areas during last one year.

I would like to thank to everyone whose hard work, dedication and perseverance make it possible to bring such an excellent and accurate Annual Report for the year 2020-21 at Jadavpur University. Undoubtedly, I feel privileged to be associated with the publication of this Annual Report, and Jadavpur University, as a whole.

Prof. Chiranjib Bhattacharjee  
Pro-Vice-Chancellor

\* Established on and from 24<sup>th</sup> December, 1955 vide Notification No.10986-Edn/TU-42/55 dated 6<sup>th</sup> December, 1955 under Jadavpur University Act, 1955 (West Bengal Act XXIII of 1955) followed by Jadavpur University Act, 1981 (West Bengal Act XXIV of 1981)

ফোন সরাসরি: ২৪৫৭-২৩৩৫  
২৪১৪-৬০৭০

Website : www.jaduniv.edu.in  
E-mail : provc@jadavpuruniversity.in

Phone Direct: 2457-2335  
2414-6070



## Annual Report 2020-2021

### যাদবপুর বিশ্ববিদ্যালয়

PROF. SAMANTAK DAS  
Pro-Vice-Chancellor

অধ্যাপক স্যামন্তক দাস  
সহ-উপাচার্য



\*JADAVPUR UNIVERSITY  
KOLKATA-700 032, INDIA

OFFICE OF THE PRO-VICE-CHANCELLOR : AUROBINDO BHAVAN

#### MESSAGE

The Annual Report of any institution or organisation performs at least two vital functions. First, it gives a synoptic view of that organisation's or institution's activities and achievements over the preceding twelve months. Second, it allows the discerning reader to evaluate such activities and achievements, with a view to identifying strengths that can be built on; weaknesses that need to be addressed; opportunities that may be more fruitfully utilized; and, finally, the challenges that need to be faced and overcome. Jadavpur University's Annual Report is no different. It is like a snapshot in time that seeks to capture this large and complex institution of higher learning – which has never been an easy task – for the benefit of the extended JU family, and the public at large.

In recent years, there has been much talk in official circles of striving for excellence, and reaching international standards, and although these are undoubtedly laudable goals, they may sometimes obscure the other goal of higher education in our country, as envisaged by the founding parents of our nation – ensuring social justice, and equal opportunities for those from the less-privileged sections of society. It is a matter of pride that Jadavpur University has worked steadfastly to ensure such justice, equity, and equality for the dispossessed and disadvantaged, whilst striving continuously for excellence in all spheres of activity, whether in teaching, research, or other no-less-important activities. A case in point is the way in which the entire JU community – including alumni/ae – came forward spontaneously to assist students who needed help to access online classes during the COVID-19 pandemic by providing free smartphones or data packs to those who could not afford them. Students, teachers, staff, and well-wishers also lent a helping hand to local communities, during the worst period of the pandemic – an instance of how the university has remained integrated with its neighbourhood.

Not all of this can be reflected in an Annual Report, which, by its very nature, is largely restricted to reporting more palpably quantifiable aspects of the life of an institution, but it is perhaps in these qualitative and not-so-easily discernible areas that Jadavpur University continues to shine and provide a beacon of inspiration and hope to other institutions of higher education in our country.

My congratulations and gratitude to those who have worked tirelessly – especially in these difficult times – to bring out this Annual Report.

  
(Samantak Das)

\* Established on and from 24<sup>th</sup> December, 1955 vide Notification No.10986-Edn/IU-42/55 dated 6<sup>th</sup> December, 1955 under Jadavpur University Act, 1955 (West Bengal Act XXIII of 1955) followed by Jadavpur University Act, 1981 (West Bengal Act XXIV of 1981)

ফোন সরাসরি : + ৯১ ৩৩ ২৪১৪-৬০৭০

Website : [www.jaduniv.edu.in](http://www.jaduniv.edu.in)

Phone Direct : + 91 33 2414-6070

দপ্তর : + ৯১ ৩৩ ২৪৫৭-২৫৫৪

E-mail : [provicechancellor@jadavpuruniversity.in](mailto:provicechancellor@jadavpuruniversity.in)

Office : + 91 33 2457-2554

**SECTION - A**  
**ADMINISTRATIVE PROFILE**

## Annual Report 2020-2021

### GENERAL INFORMATION OF JADAVPUR UNIVERSITY

Jadavpur University has a long and distinguished heritage. The years 1905-06 are memorable in the history of Bengal and indeed in that of India. The attempt by the Government to partition Bengal led to a countrywide agitation and an intense nationalist movement which, though political at the outset, had important economic and cultural implications. The economic aspect of the movement found expression in the production and use of *swadeshi* goods. The cultural impact was felt in the regeneration of Indian art and music, but most of all in a reaction against the prevalent system of education and the devising of an alternative planned entirely on national lines and directed towards serving the national interest.

It was in this way that the National Council of Education, Bengal, was started in 1906 'to impart education—literary and scientific as well as technical and professional—on national lines and exclusively under national control, not in opposition to, but standing apart from the existing system of primary, secondary and collegiate education, attaching special importance to a knowledge of the country, its literature, history and philosophy, and designed to incorporate the best oriental ideals of life and thought, the best assimilable ideals of the West and inspire students with the genuine love for and desire to serve the country.'

The foundation of the National Council of Education, Bengal, was made possible by the munificence of three generous donors, Raja Subodh Chandra Vasu Mallik, Brojendra Kishore Roy Chowdhury of Gouripur and Maharaja Surya Kanta Acharyya Chowdhury Bahadur of Mymensingh. The first President of the National Council of Education was Sir Rash Behari Ghose, and in its early days, nearly all notable figures of the time were associated with it – some of whom, such as Rabindranath Tagore and Aurobindo Ghosh, later won international recognition.

In 1906, the year of the foundation of the National Council of Education, Bengal, another association was set up known as the Society for the Promotion of Technical Education in Bengal, also under the presidentship of Sir Rash Behari Ghose, with the aim of imparting scientific and technical education to the people of India to further industrial progress. Under the auspices of this Society, the Bengal Technical Institution (later known as the College of Engineering and Technology, Bengal) was started, financed mainly by Sir Taraknath Palit. In 1910, the Society for the Promotion of Technical Education in Bengal was amalgamated with the National Council of Education, Bengal.

The National Council of Education, Bengal, started with courses in Arts, Science and Technology courses, but finding the public demand for the latter more insistent, the Council came to devote almost all its resources to technical education through its College of Engineering and Technology.

In 1921, the Council had the good fortune to receive a donation of about 13 lakhs of rupees under the will of Sir Rash Behari Ghose. This bequest enabled the Council in 1924 to construct a number of buildings and workshops on its present site at Jadavpur. Besides the donations and endowments of the founders mentioned above, the Council also received a sum of about 10 lakh rupees as donations from various other persons. The present site itself is a gift of the Corporation of Calcutta, which leased out 64 acres of land to the Council at a nominal rent.

At the time of Independence in 1947, the College of Engineering and Technology, Bengal, was virtually functioning as a university. In view of this fact, and in order that the degree of the National Council of Education, Bengal, might receive statutory recognition, the Government of West Bengal with the concurrence of the Government of India enacted the necessary legislation for the establishment of a University at Jadavpur under the name of JADAVPUR UNIVERSITY, which started life on 24 December 1955.

## Annual Report 2020-2021

A new Jadavpur University Act was passed in 1981. It aimed ‘to reconstitute the Jadavpur University to enable it to function more efficiently as a University encouraging and providing for instruction, teaching, training and research in various branches of learning and courses of study, promoting advancement and dissemination of knowledge and learning, and extending higher education to meet the growing needs of society and to make the constitution of various authorities or bodies of the University more democratic, consistent with the objectives of the National Council of Education, Bengal and the Dawn Society.’

### FOUNDERS

We recall with pride and gratitude the names of the great men who conceived of, established and nurtured the National Council of Education, Bengal, the precursor to the University.

- Tarak Nath Palit (1831-1914)
- Sir Gooroodas Banerji (1844-1918)
- Sir Rash Behari Ghose (1845-1921)
- Basanta Kumar Basu (1850-1935)
- Surya Kanta Acharyya Chowdhury (1851-1908)
- Gopal Chandra Sinha (1852-1926)
- Haradaya Nag (1853-1942)
- Byomkesh Chakravarti (1855-1929)
- Promatho Nath Bose (1855-1935)
- Sir Ashutosh Chaudhury (1860-1924)
- Acharya Prafulla Chandra Roy (1861-1944)
- Acharya Satish Chandra Mukhopadhyay (1865-1948)
- Satyananda Basu (1866-1948)
- Hirendranath Dutta (1868-1942)
- Sakharam Ganesh Deuskar (1869-1912)
- Aurobindo Ghosh (1872-1950)
- Abdul Rasul (1872-1917)
- Brojendra Kishore Roy Chowdhury (1874-1957)
- Raja Subodh Chandra Vasu Mallik (1879-1920)
- Bidhan Chandra Roy (1882-1962)
- Benoy Kumar Sarkar (1887-1949)

### CHANCELLORS/PRESIDENTS

- Bidhan Chandra Roy (24.12.1955-1.7.1962)
- Triguna Sen (2.7.1962-24.10.1962)
- Satish Chandra Bhattacharyya (4.6.1967-24.12.1967)
- Arun Kumar Mukherjee (25.12.1967-6.12.1969)
- Triguna Sen (7.12.1969-25.4.1970)
- Sudhir Chandra Chakraborty (10.4.1971-20.12.1971)

### STATE GOVERNORS AS CHANCELLORS (EX-OFFICIO)

- Anthony Lancelot Dias (21.12.1971-5.11.1977)
- Sankar Prasad Mitra (10.9.1974-5.10.1974);
  - [officiated during absence on leave of Anthony Lancelot Dias]
- Tribhuban Narayan Singh (6.11.1977-11.9.1981)
- Bhairab Dutta Pande (12.9.1981-9.10.1983)
- Anant Prasad Sharma (10.10.1983-15.8.1984)

## Annual Report 2020-2021

- Satish Chandra (Officiating, 16.8.1984-30.9.1984)
- Uma Sankar Dikshit (1.10.1984-12.8.1986)
- Saiyid Nurul Hasan (12.8.1986-1.3.1989)
- T. V. Rajeswar (3.3.1989-6.2.1990)
- Saiyid Nurul Hasan (7.2.1990-13.7.1993)
- K. V. Raghunath Reddy (14.7.1993-23.2.1998)
- A. R. Kidwai (24.2.1998-18.5.1999)
- Shyamal Kumar Sen (Officiating, 22.5.1999-3.12.1999)
- Viren J. Shah (4.12.1999-13.12.2004)
- Gopal Krishna Gandhi (14.12.2004-14.12.2009)
- Devanand Konwar (Officiating, 14.12.2009-24.01.2010)
- M. K. Narayanan (24.01.2010-30.06.2014)
- D.Y. Patil (03.07.2014-17.07.2014)
- Keshari Nath Tripathi (24.07.2014-29.07.2019)
- Jagdeep Dhankar (30.07.2019-Continuing)

### VICE CHANCELLORS

- Triguna Sen (24.12.1955-31.7.1966, Rector/Vice Chancellor)
- Hem Chandra Guha (1.8.1966-31.7.1970)
- Gopal Chandra Sen (Officiating, 1.8.1970-30.12.1970)
- Anil Kumar Majumdar (1.1.1971-15.8.1971)
- Arabinda Nath Basu (16.8.1971-20.11.1979)
- Manindra Mohan Chakrabarty (21.11.1979-31.8.1985)
- Santosh Kumar Sarkar (1.9.1985-28.2.1986)
- Sankar Kumar Sen (1.3.1986-12.4.1991)
- Ajit Kumar Pal (Officiating, 13.4.1991-5.8.1991)
- Pratip Kumar Mukherjee (6.8.1991-31.12.1993)
- Subodh Chandra Som (31.12.1993-29.6.1998)
- Ashok Nath Basu (29.6.1998-29.06.2006)
- Shyamal Kanti Sanyal (30.06.06-14.10.2007)
- Pradip Narayan Ghosh (15.10.07-14.04.2012)
- Abhijit Chakrabarti (15.04.2012-31.07.2012)
- Souvik Bhattacharyya (1.08.2012-27.10.2013)
- Abhijit Chakrabarti (28.10.2013 : for 6 months  
(28.04.2014 : for 6 months  
(10.10.2014 - 18.01.2015)
- Ashish S. Verma (Officiating, 19.01.2015 - 15.07.2015)
- Suranjan Das (16.07.2015 - Continuing)

### REGISTRARS

- P. C. V. Mallik (1955-30.6.73)
- A. K. Gupta (1.7.73-1.6.88)
- B. Banerjee (26.8.88-31.10.97)
- R. Bandyopadhyay (27.12.97-31.08.2008)
- S. C. Chakraborty (Officiating, 1.09.2008-19.01.2009)
- P. K. Ghosh (20.01.2009-31.08.2017)
- P. P. Lahiri (Officiating, w.e.f. 01.09.2017 - for 6 months)
- Professor Chiranjib Bhattacharjee (Acting, w.e.f. 05.03.2018 for 6 months & w.e.f. 19.09.2018)
- Dr. Pradip Kr. Ghosh (Acting, w.e.f. 05.09.2018)
- Dr. Snehamanju Basu (w.e.f. 05.11.2018 - Continuing)



## Annual Report 2020-2021

### THE CAMPUS

The University stands on 60 acres of land on 188 Raja Subodh Chandra Mallik Road at Jadavpur in South Kolkata (apart from its new 7.6 acre adjacent new campus). It is 8 km by rail from Sealdah Station, 15 km by road from Howrah Station, 25 km by road from Netaji Subhas Chandra Bose International Airport, and 3 km by road from the Metro Railway Terminus at Tollygunge. The campus is close to Jadavpur Railway Station, and is approachable by public transport from all parts of Kolkata. Various other research and academic institutions have grown up around the University, creating a belt of scientific and academic activity. Among these centres are the Indian Institute of Chemical Biology, the Central Glass and Ceramic Research Institute (both CSIR laboratories), the Indian Association for the Cultivation of Science, the academic complex of the National Council of Education, Bengal, the Regional Institute of Printing Technology, the Acharya P. C. Ray Polytechnic, and other organizations of repute. The campus itself houses the Department of Electronics Accredited Computer Courses (DOEACC) Centre and the headquarters of the Indian Institute of Chemical Engineers.

### SECOND CAMPUS

The rapid growth of the University created a demand for more space. The Government of West Bengal granted the University 21.3 acres of land at Block IB, Plot No.8, Bidhan Nagar (Salt Lake City), Kolkata 700 098, 13 km away from the main campus at Jadavpur. Here, the University plans to promote an area of 5 lakh sq ft in the form of a building complex to accommodate various departments, as well as an administrative office, seminar halls, staff quarters etc. A library, hostel and computer centre have already come up at the site. At present, the following departments function from the second campus: Construction Engineering, Information Technology, Instrumentation Engineering, Power Engineering and Printing Engineering. The campus has a well-equipped gymnasium and a cricket ground that hosts state-level tournaments. The Eastern Regional Office of the UGC and the Inter-University Consortium for Atomic Energy are also located on this campus.

### WEST ANNEXE CAMPUS

National Instruments Limited (NIL) was a Central Public Sector Enterprise under the Ministry of Heavy Industries and Public Enterprises, Govt. of India. NIL was engaged in the field of sophisticated Optical, Opto-Mechanical and Opto-Electronics Instruments manufacturing and maintenance and in the year 1992 it was referred to BIFR (Board of Industrial and Financial Reconstruction) under section 15(1) of the Sick Industrial Companies Act, 1985 as a sick industry.

The Jadavpur University and the University of Calcutta expressed interest in taking over the assets, liabilities and manpower of NIL for further expansion of their academic activities. Government of West Bengal decided in favour of Jadavpur University in view of close proximity of its main campus to NIL.

A meeting of all the stakeholders of the company, the representatives of the Govt. of India, Govt. of West Bengal, Regional Provident Fund Commissioner, Jadavpur University and workers/officers Union/ Association was held on 24.06.2005 to consider the proposal of taking over assets, liabilities and manpower of NIL.

BIFR, based on the draft scheme submitted by the operating agent, the State Bank of India, and an affidavit submitted by the Jadavpur University, prepared a scheme for revival of the sick company, the

## Annual Report 2020-2021

NIL, which included transfer of assets and liabilities of NIL along with transfer of existing employees with effect from 01.04.2007 in favour of Jadavpur University for utilization of the company's infrastructure for R&D purpose of the JU and the Board approved the said scheme on 04.08.2008.

Accordingly, NIL was transferred to Jadavpur University by an agreement made between NIL and the JU on the basis of the direction of BIFR, G.O.I and Govt. of West Bengal on and from 01.01.2009.

The erstwhile NIL campus is now the third campus of the JU and is known as West Annexe Campus of the University.

Jadavpur University with its strong research culture and experienced faculty has been associated with DRDO since 1970s. Notable contributions are in Control, Guidance, Fault Tolerance of Missile Systems and Information Security. A Multi-Institute Collaborative Directed Basic Research facility will be created as "Jagadish Chandra Bose Centre for Advanced Technology : A DRDO-JU Initiative" (JCBCAT) with generous funding from DRDO. This joint venture is envisioned to emerge as a centre of excellence in conducting scientific and applied research in directed areas of advanced technology for defence. The Centre will be located in part of the West Annexe Campus (erstwhile National Instruments Ltd. Campus) of the University. The JCBCAT will involve all the universities, IITs and NITs and research institutes of the region as well as ISI and IISER as participating institutions.

The University has many plans for expansion in the new campus. For example, setting up a Business Incubator, an Institute of Management Studies, Tagore Research Centre etc. Classes of few of the new courses are already going on in the campus and few other new plans are still in the pipeline.

### **JURISDICTION**

The local limits of jurisdiction of the University extend to a radius of three and a half kilometres from the place where the University has its administrative nucleus.

Further, statutory provisions have been made so that any college or institution situated beyond the statutory area may also apply to the University for affiliation or recognition of any course or courses of study leading to a degree, diploma or certificate. The University may, subject to such conditions and restrictions as it may, with the approval of the State Government, think fit to impose, affiliate to itself, or recognize the course or courses of study conducted by, such college or institution, and admit the latter to all privileges of the University.

The colleges and institutions currently affiliated to the University are: Institute of Business Management under the control of National Council of Education, Bengal, and J.D. Birla Institute of Home Science, Kolkata. Further, the following institutions have been recognized as those at which research may be conducted leading to the Ph.D. degree of the University: Saha Institute of Nuclear Physics; School of Tropical Medicine, Kolkata; VECC (Bhabha Atomic Research Centre), Kolkata; Indian Association for Cultivation of Science, Kolkata; Indian Institute of Chemical Biology; Central Glass and Ceramic Research Institute; Bose Institute; Indian Statistical Institute, Kolkata; Jute Technological Research Laboratory; Chittaranjan National Cancer Research Centre; S.N. Bose National Centre for Basic Sciences; All India Institute of Hygiene and Public Health.

### **EMBLEM**

The University adopted for its seal and emblem a design of three lamps encircled in lotus petals, executed under the direction of Nandalal Bose (1883-1966). The lamp represents knowledge, while the three flames are emblematic of intellectual training, integration of emotion, and imagination and spiritual development. The petals in the periphery represent philosophy, the fine arts and culture.

### **FEATURES**

## Annual Report 2020-2021

Jadavpur University is primarily a unitary teaching and research university, grouped into the three faculties of Arts, Science, and Engineering and Technology. It also has statutory authority to affiliate other institutions. All authority is vested in one body, the Court of the University which has four main advisory Councils: the Executive Council and the three Faculty Councils for Postgraduate and Undergraduate Studies. Advisory Committees under the authority of the Court include the Boards of Studies, the Finance Committee, the Working Committee, the Planning and Development Committee, and such other authorities as may be established under the statutes.

The Court functions on broad-based democratic principles and norms. It comprises representatives of University teachers, officers, non-teaching staff, students, research scholars, registered graduates and affiliated colleges. It also has one member each from the registered trade unions, primary school teachers' association and secondary school teachers' association within the territorial jurisdiction of the University. Besides these, the Court has ex-officio members from the senior ranks of Central and State Government bodies and institutions; three representatives of donors; and four elected members from the National Council of Education, Bengal, in addition to the President of the Council.

The University has three Faculties: Arts, Science, and Engineering and Technology with 35 departments under them: 12 in Arts, 17 in Engineering and Technology, and 6 in Science. Some of these departments have contributed to the development of new disciplines in the country, such as Chemical Engineering, Comparative Literature, International Relations, Film Studies and Production Engineering. The University has also evolved an interdisciplinary and interfaculty system of Schools devoted primarily to research but in some instances offering taught courses; as well as a number of Centres for research, primarily within a given discipline but branching outwards towards interdisciplinary work.

In 2001, the University Grants Commission declared Jadavpur University as one of five leading 'universities with potential for excellence'. An exceptional number of departments have been identified by the UGC as Departments of Special Assistance and Centres of Advanced Studies, or for its COSIST programme. Recently, the Department of Science and Technology, Government of India, has identified a number of departments for its FIST programme. Besides, a number of projects are granted every year by the CSIR, the MHRD, the DST, the DBT, the DOD, the ICMR, the ICSSR and other funding agencies. An index of such research activities is the increasing participation by teachers of the University in national and international conferences, not to mention the increasing number of conferences hosted every year at Jadavpur.

These awards and honours are at least in part the result of some notable features of the internal organization of the University:

- (i) a close relationship between teacher and taught, with a joint Student-Teacher Committee in each department;
- (ii) close links with ex-students;
- (iii) lively extra-curricular activities;
- (iv) a tutorial system.

This unitary University is in spirit and intention, though not in actual fact, a residential institution, and as such lays emphasis on the development of corporate life among the students. Students are expected to participate in co-curricular activities to realize their potentials, enrich their personality, and further the ends of corporate life.

What we want here is not merely to give you a little information, not merely to open to you careers for earning a livelihood, but to build up sons for the motherland to work and to suffer for her. That is why we started this College and that is the work to which I want you to devote yourselves in future. What has been insufficiently and imperfectly begun by us, it is for you to complete and lead to perfection.

## **Annual Report 2020-2021**

[From the speech by Aurobindo Ghosh delivered on 22 August, 1907 before the students and teachers of Bengal National College.]

### **VISION AND MISSION**

#### **VISION**

The National Council of Education, Bengal, was established in 1906 in the wake of the nationalist movement. It was led by intellectuals, statesmen and the middle-class intelligentsia, and its aim was to cultivate the best of global learning and technology in order to build a self-reliant industrial base for India. Bengal Technical Institute was among the educational institutions founded by NCE, Bengal. Its mission was to impart training to Indian students in the appropriate technology so that the country could produce indigenous consumable materials. This Institute, later renamed College of Engineering and Technology, was in turn converted to Jadavpur University in 1955. The founders believed that the Technology Faculty could not sustain itself without active Faculties of the Basic Sciences and the Humanities. While playing a vital role in technical education in the country, the University may be said to rest on three pillars - Technology, Science and Arts. Jadavpur University is at present an internationally recognised premier university of the country. It is an urban university with a global perspective and is dedicated to creating leaders who will fashion a more humane and just world. Following in the footsteps of its predecessor, the University not only engages itself in teaching and research of international quality, but also provides societal services for the benefit of rural and urban populations. The programmes are directed towards achieving excellence in education and extending the benefits of improved technology to the society as a whole. The faculty members are encouraged to add value to the courses so that students can secure employment or attempt entrepreneurship. Extension programmes and several other courses provide opportunities for the drop-outs at different levels to continue their education. The objective is that they should be able to earn a living and derive the impersonal pleasure of learning at the same time. The University also contributes in evolving modes of digital distance education as part of the National Mission on Education.

#### **MISSION**

- The University wishes to grow further as a diverse and socially responsible learning community, providing a high quality of scholarship and equal opportunity for all. The University's core values include a commitment to:
- The highest standards of excellence in teaching, research, creative expression and service to the community;
- Advanced learning as a humanising social practice rather than as a competitive exercise;
- Regarding the production and dissemination of knowledge as inseparable goals;
- Upholding the principle that the culture of reason and learning is indivisible from a concern for the world beyond the campus;
- Maintaining principles of democratic governance and intellectual and institutional freedom;
- Abiding by principles that do not discriminate on the basis of religion, race, caste, gender and economic status.

## Annual Report 2020-2021

### COURSES OFFERED

#### A. FACULTY OF ARTS

##### **M.Phil Courses:**

1. Master of Philosophy in Bengali
2. Master of Philosophy in Comparative Literature
3. Master of Philosophy in Economics
4. Master of Philosophy in Education
5. Master of Philosophy in English
6. Master of Philosophy in History
7. Master of Philosophy in International Relations
8. Master of Philosophy in Library & Information Science
9. Master of Philosophy in Philosophy
10. Master of Philosophy in Sanskrit
11. Master of Philosophy in Sociology

##### **Post-Graduate Courses :**

1. Master of Arts in Bengali
2. Master of Arts in Comparative Literature
3. Master of Arts in Economics
4. Master of Arts in Education
5. Master of Arts in English
6. Master of Arts in Film Studies
7. Master of Arts in History
8. Master of Library & Information Science
9. Master of Library & Information Science (Digital Library)
10. Master of Arts in Linguistics
11. Master of Arts in Philosophy
12. Master of Physical Education
13. Master of Arts in Political Science with International Relations
14. Master of Arts in Sanskrit
15. Master of Arts in Sociology

##### **Under-Graduate Courses :**

1. Bachelor of Arts in Bengali
2. Bachelor of Commerce (J.D. Birla Institute)
3. Bachelor of Arts in Comparative Literature
4. Bachelor of Arts in Economics
5. Bachelor of Education
6. Bachelor of Arts in English
7. Bachelor of Arts in History
8. Bachelor of Library & Information Science
9. Bachelor of Arts in Philosophy
10. Bachelor of Physical Education
11. Bachelor of Arts in Political Science
12. Bachelor of Arts in Sanskrit
13. Bachelor of Arts in Sociology



## Annual Report 2020-2021

### **OTHER COURSES (OFFERED BY THE DEPARTMENTS/CENTRES/SCHOOLS):**

1. Department of International Relations : One year Diploma Course in Human Rights and Duties Education
2. Department of Sociology : a) First degree-level course in Applied Sociology  
b) PG Diploma course in Society, Religion and Social Work
3. Bhasacharya Suniti Kumar Chatterji  
Centre for Language Studies : One year certificate course on Voice Training and Speech Production
4. Centre for Counselling Services and Studies in Self- Development:  
a) UGC-Sponsored 3 year Career Oriented Certificate course on Stress Management  
b) 2 year PG Diploma course in Counselling and Stress Management
5. Centre for Translation of Indian Literatures (CENTIL) :a) One year Certificate course in Translation as a Skill
6. Centre for Yoga : a) Post-graduate Diploma in Yoga
7. ICPR Centre for Buddhist Studies: Certificate course in Buddhist Studies Recommended by ICPR

## **B. FACULTY OF ENGINEERING & TECHNOLOGY**

### **Post-Graduate Courses:**

1. Master of Architecture
2. Master of Automobile Engineering
3. Master of Bioprocess Engineering
4. Master of Chemical Engineering
5. Master of Civil Engineering
6. Master of Clinical Pharmacy & Pharmacy Practice
7. Master of Computer Science & Engineering
8. Master of Computer Application
9. Master of Computer Technology
10. Master of Construction Engineering
11. Master of Control System Engineering
12. Master of Electrical Engineering
13. Master of Electronics & Tele-Communication Engineering
14. Master of Illumination Engineering
15. Master of Instrumentation & Electronics Engineering
16. Master of Intelligent Automation & Robotics
17. Master of Food Technology & Biochemical Engineering
18. Master of Mechanical Engineering
19. Master of Metallurgical Engineering
20. Master of Material Engineering
21. Master of Pharmacy
22. Master of Power Engineering
23. Master of Printing Engineering & Graphic Communication

## Annual Report 2020-2021

24. Master of Production Engineering
25. Master of Software Engineering
26. Master of VLSI Design & Microelectronics Technology

### **Under-Graduate Courses:**

1. Bachelor of Architecture
2. Bachelor of Chemical Engineering
3. Bachelor of Civil Engineering
4. Bachelor of Civil Engineering (5-Year Evening Courses)
5. Bachelor of Computer Science Engineering
6. Bachelor of Construction Engineering
7. Bachelor of Electrical Engineering
8. Bachelor of Electrical Engineering (5-Year Evening Courses)
9. Bachelor of Electronics & Tele-Communication Engineering
10. Bachelor of Food Technology & Biochemical Engineering
11. Bachelor of Information Technology
12. Bachelor of Instrumentation & Electronics Engineering
13. Bachelor of Mechanical Engineering
14. Bachelor of Mechanical Engineering (5-Year Evening Courses)
15. Bachelor of Metallurgical Engineering
16. Bachelor of Pharmaceutical Technology
17. Bachelor of Power Engineering
18. Bachelor of Printing Engineering
19. Bachelor of Production Engineering

### **OTHER COURSES (OFFERED BY THE CENTRES)**

1. **Centre for Computer Aided Design:**
  - a) One year P.G. Diploma in applied GIS and Remote Sensing
  - b) One year Diploma in Multimedia and Animation
  - c) Auto CAD with AutoLisp
  - d) Structural Analysis and Design
  - e) Advanced 3D Modelling
2. **Centre for Welding Technology:**
  - a) Certificate course in Welding Inspection and Testing,
  - b) Training course for Welders (MMAW/TIG/Pipe Welding) / Supervisors,
  - c) Six Module-based Post-Diploma course for Engineers.

### **C. FACULTY OF SCIENCE**

#### **Post-Graduate Courses:**

1. Master of Philosophy in Oceanography and Coastal Management (See under Faculty of ISLM)
2. Master of Science in Applied Geology
3. Master of Science in Biotechnology
4. Master of Science in Chemistry (Day & Evening) 2-year Day Course/3 year Evening Course
5. Master of Science in Electronics Science
6. Master of Science in Geography
7. Master of Science in Composite Home Science (Human Development, J.D.Birla Institute)
8. Master of Science in Home Science (Resource Management, J.D.Birla Institute)
9. Master of Science in Home Science (Textiles and Clothing, J.D.Birla Institute)

## Annual Report 2020-2021

10. Master of Science in Home Science (Food and Nutrition, J.D.Birla Institute)
11. Master of Science in Instrumentation Science
12. Master of Science in Mathematics (Day & Evening) 2-year Day Course/3 year Evening Course
13. Master of Science in Physics (Day & Evening) 2-year Day Course/3 year Evening Course

### **Under-Graduate Courses:**

1. Bachelor of Science in Chemistry
2. Bachelor of Science in Food Science & Nutrition Management (J.D. Birla Institute)
3. Bachelor of Science in Geography
4. Bachelor of Science in Geological Sciences
5. Bachelor of Science in Home Science (J.D. Birla Institute)
6. Bachelor of Science in Human Development (J.D. Birla Institute)
7. Bachelor of Science in Interior Designing (J.D. Birla Institute)
8. Bachelor of Science in Mathematics
9. Bachelor of Science in Physics
10. Bachelor of Science in Textile Science, Clothing & Fashion Studies (J.D. Birla Institute)

### **Other Courses (Offered by the Departments/Centres):**

Department of Physics : Post-M.Sc. Diploma in Medical Physics

## **D. FACULTY OF INTERDISCIPLINARY STUDIES LAW & MANAGEMENT**

### **Ph.D. Courses under FISLM**

1. School of Advanced Studies on Industrial Pollution Control Engineering
2. School of Automotive Engineering
3. School of Bioscience & Engineering
4. School of Cognitive Science
5. School of Cultural Texts & Records
6. School of Education Technology
7. School of Energy Studies
8. School of Environmental Radiation and Archaeological Sciences
9. School of Environmental Studies
10. School of Illumination Science, Engineering & Design
11. School of International Relations and Strategic Studies
12. School of Languages & Linguistics
13. School of Laser Science & Engineering
14. School of Material Science & Nano Technology
15. School of Media, Communication & Culture
16. School of Mobile Computing & Communication
17. School of Natural Product Studies
18. School of Nuclear Studies and Application
19. School of Oceanographic Studies
20. School of Water Resources Engineering
21. School of Women's Studies
22. Department of Adult Continuing Education & Extension

### **M.Phil Courses under FISLM**

1. School of Cognitive Science
2. School of Languages & Linguistics
3. School of Oceanographic Studies
4. School of Women's Studies

## Annual Report 2020-2021

### Ph.D. Courses under FISLM

1. School of Advanced Studies on Industrial Pollution Control Engineering
2. School of Automotive Engineering
3. School of Bioscience & Engineering
4. School of Cognitive Science
5. School of Cultural Texts & Records
6. School of Education Technology
7. School of Energy Studies
8. School of Environmental Radiation and Archaeological Sciences
9. School of Environmental Studies
10. School of Illumination Science, Engineering & Design
11. School of International Relations and Strategic Studies
12. School of Languages & Linguistics
13. School of Laser Science & Engineering
14. School of Material Science & Nano Technology
15. School of Media, Communication & Culture
16. School of Mobile Computing & Communication
17. School of Natural Product Studies
18. School of Nuclear Studies and Application
19. School of Oceanographic Studies
20. School of Water Resources Engineering
21. School of Women's Studies
22. Department of Adult Continuing Education & Extension

### Post-Graduate Courses under FISLM

- |   |   |
|---|---|
| 1. Department of Adult Continuing Education & Extension | M.A. in Journalism & Mass-Communication |
|---|---|

### Post Graduate Diploma Courses under FISLM

#### Schools/Departments

1. School of Oceanographic Studies

#### Courses

Post Graduate Diploma in Remote Sensing & GIS

2. Department of Adult Continuing Education & Extension

Post Graduate Diploma in Mass-Communication

3. School of Cultural Texts and Records:

Digital Humanities and Cultural Informatics

### Diploma Courses under FISLM

1. School of Environmental Studies

Diploma in Industrial Safety and Environmental Management

### Post Graduate Certificate Courses under FISLM

1. School of Languages and Linguistics
2. School of Cultural Texts and Records:

Introduction to Linguistics  
Editing and Publishing

## Annual Report 2020-2021

### UNIVERSITY OFFICERS (As on 1st. November, 2021)

Sl.no.	Name	Designation
1	Dr. Suranjan Das	Vice-chancellor
3	Dr. Chiranjib Bhattacharjee	Pro-Vice-chancellor
2	Dr. Samantak Das	Pro-Vice-chancellor
4	Dr. Snehamanju Basu	Registrar
5	Dr. Sanjay Gopal Sarkar	Jt. Registrar
6	Sri Pranab Kumar Gayen	Deputy Registrar
7	Dr. Ujjal Kr. Mondal	Assistant Registrar
8	Sri Gour Krishna Pattanayak	Finance Officer
9	Sri Debasish Pal	Jt. Finance Officer
10	Sri Indrajit Banerjee	Secretary, Faculty of Arts
11	Dr. Satyaki Bhattacharyya	Controller of Examinations
12	Sk. Abul Hasnath	Assistant Controller of Examinations
13	Dr. Shrabana Ghosh	Librarian
14	Dr. Nandini De (Bandyopadhyay)	Documentation Officer
15	Sri Samit Pahari	Information Scientist
16	Dr. Rajat Ray	Dean of Student
17	Dr. Bappa Mullick	Director of Youth Welfare
18	Dr. Badal Sarkar	Assistant Engg. (elect.)
19	Dr. Debabrata Saha	Development Officer
20	Dr. Bholanath Karmakar	Principle Secretary (Engg)
21	Dr. Atis Kr. Chattopadhyay	Secretary (Science)
22	Sri Dipanjan Ray Chowdhury	Audit Officer
23	Sri Pranab Roy	Scientific Officer
24	Dr. Aparup Konar	Director of Phy.Instruction
25	Dr. Kaniska Sarkar	Assistant Registrar
26	Smt. Chandrani Dam	Assistant Controller
27	Sri Shiladitya Chatterjee	Accounts Officer (Selection Grade)
28	Sri Dinabandhu Tripathi	Assistant Engineer
29	Sri Sanku Bilas Roy	Librarian
30	Sri Atikur Rahman	Accounts Officer
31	Smt. Debarati Sinha Chaudhuri	Publication Officer
32	Sri Hitesh Talukdar	University Engineer
33	Dr. Mitali Deb	Medical Superintendent



## Annual Report 2020-2021

JADAVPUR UNIVERSITY

KOLKATA-700 032

**Members of the Executive Council**

**(As on 3<sup>rd</sup> December, 2021)**

1. **The Vice-Chancellor**  
**[Ex-officio Member and Vice-Chairman]**  
**Prof. Suranjan Das**  
Jadavpur University  
vc@jadavpuruniversity.in  
suranjandas2000@yahoo.co.in  
Kolkata-700 032
  
2. **Pro-Vice-Chancellor**  
**[Ex-officio Member]**  
**Prof. Chiranjib Bhattacharjee**  
Jadavpur University  
Kolkata – 700 032  
provc@jadavpuruniversity.in  
[c.bhatta@gmail.com](mailto:c.bhatta@gmail.com)
  
3. **Pro-Vice-Chancellor**  
**[Ex-officio Member]**  
**Pro. Samantak Das,**  
Pro-Vice –Chancellor  
Jadavpur University  
Kolkata-700 032  
kokopeli@gmail.com  
[provicechancellor@jadavpuruniversity.in](mailto:provicechancellor@jadavpuruniversity.in)
  
4. **Dean, Faculty Council of Arts,**  
**Prof. Arpita Ghose**  
Jadavpur University,  
Kolkata-700 032  
[deanarts@jadavpuruniversity.in](mailto:deanarts@jadavpuruniversity.in)
  
5. **Dean, Faculty Council of Engg. & Tech.,**  
**Prof. Atal Chaudhuri**  
Jadavpur University  
Kolkata-700 032  
[deanfet@jadavpuruniversity.in](mailto:deanfet@jadavpuruniversity.in)
  
6. **Dean, Faculty Council of Science,**  
**Prof. Subenoy Chakraborty,**  
Jadavpur University  
Kolkata-700 032  
[deanscience@jadavpuruniversity.in](mailto:deanscience@jadavpuruniversity.in)

## Annual Report 2020-2021

[schakraborty.math@gmail.com](mailto:schakraborty.math@gmail.com)

7. **Dean, Faculty Council of Interdisciplinary Studies, Law & Management,  
Prof. Pankaj Kumar Roy,**  
Jadavpur University  
Kolkata-700 032  
[deanislms@jadavpuruniversity.in](mailto:deanislms@jadavpuruniversity.in)
  
8. **Secretary/Nominee, Higher Education Department, Govt. of West Bengal  
[Ex-officio Member]  
Sri Jaydip Mukhopadhyay, WBCS (Exe.),**  
Special Secretary ,  
Bikash Bhavan, 6<sup>th</sup> Floor , Salt Lake  
Kolkata-700 091  
[Jaydip.edu@gmail.com](mailto:Jaydip.edu@gmail.com)  
[highereducationwb@gmail.com](mailto:highereducationwb@gmail.com)
  
9. **Secretary/Nominee, Finance Department, Govt. of West Bengal  
[Ex-officio Member]  
Sri Malay Ghosh IAS**  
Additional Secretary ,  
Finance (Audit) Department  
10<sup>th</sup> Floor, 'NABANNA' Howrah-711102
  
- 10 **Secretary/Nominee of Chairman of West Bengal State Council of Higher Education  
[Ex-officio Member]  
Prof. Soma Bandyopadhyay,**  
Vice-Chancellor  
West Bengal University Teachers Training , Education Planning and Administration  
25/2 & 25/3 , Ballygunge Circular Road, Kolkata-700 019  
[Soma17b@gmail.com](mailto:Soma17b@gmail.com)

## Annual Report 2020-2021

**Members :12 Heads of Departments (for rotation of one year in alphabetical order)**

11. **Production Engineering**  
**Dr. Bijoy Bhattacharya**  
Jadavpur University  
Kolkata-700 032  
[hodproduction@jadavpuruniversity.in](mailto:hodproduction@jadavpuruniversity.in)
  
12. **Sanskrit**  
**Prof. Kakali Ghosh**  
Jadavpur University  
Kolkata-700 032  
[hod@sanskrit.jdvu.ac.in](mailto:hod@sanskrit.jdvu.ac.in)  
[kghosh@sanskrit.jdvu.ac.in](mailto:kghosh@sanskrit.jdvu.ac.in)
  
13. **Sociology**  
**Prof. Amitesh Mukhopadhyay**  
Jadavpur University  
Kolkata-700 032  
[amites.mukhopadhyay@jadavpuruniversity.in](mailto:amites.mukhopadhyay@jadavpuruniversity.in)
  
14. **Adult Continuing Education & Extension**  
**Dr. Santwan Chattopadhyay**  
Jadavpur University  
Kolkata-700 032  
[hodadultcontinuing@jadavpuruniversity.in](mailto:hodadultcontinuing@jadavpuruniversity.in)
  
15. **Architecture**  
**Prof. Mainak Ghosh**  
Jadavpur University  
Kolkata-700 032  
[hodarchitecture@jadavpuruniversity.in](mailto:hodarchitecture@jadavpuruniversity.in)
  
16. **Bengali**  
**Dr. Rajyeswar Sinha**  
Jadavpur University  
Kolkata-700 032  
[rajyeswar.sinha@jadavpuruniveristy.in](mailto:rajyeswar.sinha@jadavpuruniveristy.in)
  
17. **Chemical Engineering**  
**Prof. Rajat Chakraborty**  
Jadavpur University  
Kolkata-700 032  
[hodchemical@jadavpuruniverisy.in](mailto:hodchemical@jadavpuruniverisy.in)

## Annual Report 2020-2021

18. **Chemistry**  
**Prof. Swapan Kumar Bhattacharya**  
Jadavpur University  
Kolkata-700  
hod.chemistry@jadavpuruniversity.in  
[hodjuchemistry@gmail.com](mailto:hodjuchemistry@gmail.com)
  
19. **Civil Engineering**  
**Prof. Shibnath Chakraborty**  
Jadavpur University  
Kolkata-700 032  
hodcivil@jadavpuruniversity.in  
[snochakraborty@yahoo.com](mailto:snochakraborty@yahoo.com)
  
20. **Comparative Literature**  
**Dr. Sujit Kumar Mandal**  
Jadavpur University,  
Kolkata-700 032  
sujitkumar.mandal@gmail.com  
[skmandal@complit.jdvu.ac.in](mailto:skmandal@complit.jdvu.ac.in)
  
21. **Computer Science & Engineering**  
**Prof. Anupam Sinha**  
Jadavpur University  
Kolkata-700032  
hodcse@jadavpuruniversity.in  
[asinha180314@gmail.com](mailto:asinha180314@gmail.com)
  
22. **Construction Engineering**  
**Dr. Gokul Chandra Mondal**  
Jadavpur University  
Salt Lake Campus ,  
[hodconstruction@jadavpuruniversity.in](mailto:hodconstruction@jadavpuruniversity.in)  
[gokulchandra.mondal@jadavpuruniversity.in](mailto:gokulchandra.mondal@jadavpuruniversity.in)
  
23. **Elected Teacher-Representatives (3 members)**  
(Faculty of Engineering & Technology)  
Vacant
  
24. **Elected Teacher-Representatives (3 members)**  
(Faculty of Arts)  
Vacant
  
25. **Elected Teacher-Representatives (3 members)**  
(Faculty of Science)  
Vacant

## Annual Report 2020-2021

26. **Elected Teacher-Representatives (1 member)**  
(Faculty of Interdisciplinary Studies Law & Management)  
Vacant
27. Nominated Members [Chancellor's Nominee (2) Members]  
Vacant
28. **Registrar [Non-Member Secretary]**  
**Dr. Snehamanju Basu**  
Jadavpur University  
Kolkata – 700 032  
registrar@jadavpuruniversity.in  
registrar@admin.jdvu.ac.in  
[drsnehamanju@gmail.com](mailto:drsnehamanju@gmail.com)
29. **Sri Gour Krishna Pattanayak**  
Finance Officer  
Jadavpur University  
Kolkata – 700 032  
fo@jadavpuruniversity.in  
[pattanayakgk@yahoo.com](mailto:pattanayakgk@yahoo.com)



## Annual Report 2020-2021

### CENTRAL LIBRARY

Phone: 033-2457-2522/2260

033-2414-6460

033-2335-6578/033-2340-6110[Salt Lake Campus]

Chief Librarian: Dr. Shrabana Ghosh (officiating)

E-mail: chief librarian@jadavpuruniversity.in

The University Library System comprises the Central Library, Salt lake Campus Library, Departmental Libraries and the Libraries attached with different Schools and Centres for higher studies; along with Centre for Digital Library and Documentation and Accessible Library for Persons with Disabilities.

The Central Library of Jadavpur University is housed in the three-storied building on Jadavpur Campus. Its shelving space and working space is about 36,000 sq. ft. (approx.) and is extended by new construction of four-storied building Annexe Building (each floor 5500sq. ft). There are more than 14 service units/sections in Central Library to run the total library system. The Check counter, Membership Registration, Circulation Section, Book Dispatch Section, General Reading Room, Bound volume Section (mezzanine floor) are located in the ground floor of the Old Building. The first floor has the BKSO Section, Old and Rare Section, Serials Section, Binding Section, Office of the Chief Librarian and the Xerox Section. The second floor has the Cataloguing Section, Reference Section, Labeling Section and the Librarian's room. The ground floor of the Annexe Building houses the Bound Volume Journals. The Centre for Digital Library and Documentation including the Learning Resource Center is operational in the first floor of the Annexe building; the 2<sup>nd</sup> floor has the Bound Volume Journals (Science & Bengali) and the 3<sup>rd</sup> floor houses the Theses Section. The Central Library has eight reading rooms, carrels, and an alcove for bound volume journals. The total sitting arrangement is near about 800 readers at a time.

There is a separate library building on the Second Campus at Salt Lake. The total floor area of the library is near about 6,940 sq. ft.(approx.) in ground floor. The first floor of the library building is completed with same floor area of ground floor. The total sitting arrangements in the reading rooms for the readers are 80 seats; 5 for faculty members and 75 for student members at a time respectively.

Most of the Departments in the main campus have Departmental Libraries. Reading and borrowing facilities in the appropriate manner are given in the Departmental Libraries to the faculty members and students, scholars of the Department. All the computers in the campus are connected through LAN and are IP address authenticated so that all e-resources can be accessed from all the computers.

On Salt Lake Campus, there are 5 (five) Departments, 2 (two) Schools under the Faculty of Engineering and Technology of the University. There is an Academic Staff College (UGC). There are no department libraries at Salt Lake Campus. But the Academic Staff College and Centre for Mobile Computing and Communication each has separate library. All Faculty Members, Students, Research Scholars, Officers and Non-Teaching staff members enjoy library service facilities from only one Campus Library. Since 1989, all Library administrative and library functions are systematically organized and done by Salt Lake Campus Library following the integrated and uniform library rules, under the Jadavpur University library system, separately.

#### **Centre for Digital Library and Documentation:**

The Centre for Digital Library and Documentation was established in November 2003 in the first floor of the new Annexe Building of Central Library under the Potential for Excellence Program-I of UGC. The Digital Library has a Learning Resource Centre (LRC) with 60 Nos. of terminals, 4 Nos. of servers and one reading room for users. The digital resources are made available to the users through the Library Portal.

## Annual Report 2020-2021

All the facilities of Digital Library are available on the Salt Lake Campus Library which is linked with the Central Library. There are two servers for managing the Digital Library connectivity & 16 terminals for Learning Resource Centre for students.

### Accessible Library:

The **Accessible Library for Persons with Disabilities** is housed at the ground floor of the Jadavpur University Central Library (Annexe Building). The Accessible Library has five staff members and the number of users is about 93.

The Accessible Library uses **Jaws Professional, NVDA, MAGIC 14, OPEN BOOK 9, Read Braille** softwares to access the e-resources. They also access e-books from Sugam Pustakalaya, Bookshare, Jstor, Project Muse and RNIBBookshare.

The Accessible Library has **1930** audio books, **1200** Braille books, **158** pdf documents and **35** e-books. During this period **85** audio books and **25** Braille books were prepared for the students.

### Library Collection:

The total collection of Central Library along with the Departmental Libraries is about **6,92,310 (approx.)** volumes of books, **6222** e-books in perpetual mode, **82,154** bound volumes of journals, **8831 (hardcopy)** theses, **8631** dissertations and **3047 CDs** of theses and dissertations **3000** standards & **37,000** items of non-book materials such as reports, pamphlets, maps and micro-forms. In addition to that, Salt Lake Campus Library has about **35,796 (approx.)** volumes of books. The total number of theses uploaded in **Sodhganga** is **928**.

The total number of books added during April 2020 to March 2021 was **566**. The total number of e-books (online in perpetual mode) added during this period was **1478 (approx.)**

The total number of **251** theses were processed. The retro conversion work for **150** theses has been completed. Under the pilot project of **ProQuest**, **503** backlog theses were digitized.

The total number of **Print** journals (including Newspapers and Magazines) subscribed by Central Library is **199**, **Online journals** is **7610** and **Print + Online journals** is **7** and **Online** databases is **20**. The total number of **Online journals** subscribed by Salt lake Campus Library is **13** and **Database** is **1**. In addition to the subscribed journals, the University has access to **7161 (approx.) Online** journals and **4** databases from **e-SodhSindhu (INFLIBNET)**. The Library subscribes to the **LNCS and LNP ebook series**. The Library also subscribes to **EBook Central of ProQuest** which has approx. **2 lakh** titles.

A considerable part of the Library's collection consists of gifts from individuals and institutions, the largest book donation having been from Sri Uday Kumar Das, Kumar S. C. Nandy of Cossimbazar, NCE Bengal, the British Council, USIS, Asia Foundation, the late A. K. Chanda, Srinath Das, Hemchandra Dasgupta, Hemendraprasad Ghosh, Prof. Triguna Sen, Prof. Gopal Sen, Taraknath Das, Sudhindranath Datta and others. The gift collections contain a good stock of old materials valuable for research in the Humanities and Social Sciences.

The total number of books catalogued was **1169 (approx.)**, and **510 (approx.)** books were dispatched to the different Departments.

The **CDLD** has uploaded total number of **5469** question papers, **3263** e-books, **4193** e-journals and **20 databases** in the **library portal** during this period.

### Library services

The total number of Library members in Central Library is about **13565 (approx.)**. **691** members were added during 2020-21.

The total number of transaction in Circulation Section of Central Library is **6904 (approx.)**.

## Annual Report 2020-2021

The **Libsys7 web version** software is used for library automation. Databases of books, journals and theses etc. are created and being updated. The Web-OPAC facilities are available for searching the databases. The databases are also available through the Library portal on the internet. The **EBSCO Discovery Service** is used to search across the databases and the catalogue. The e-resources are made available on our library portal. Facilities for searching Databases and Internet are also available to all users in the different floors of Central Library and also through all network enabled computers in both the campuses.

During the pandemic period, the physical services of Central Library were temporarily suspended. The Library services were primarily provided through the digital mode. The “**Digital Library Beyond Campus**” service through **Remotex** was already provided to the faculty members. The service was extended to the research scholars and PG final year students; **99** research scholars and **75** PG final year students were registered for the service during this period. In order to provide access to the e-resources remotely (for the other PG and UG students), the Central Library had collected the usernames and passwords from different publishers which were distributed to the user community so that they may access the e-resources subscribed by the University.

However, the issuing of Library Clearance was carried on as far as possible. The **CDLD** had also provided Online Library Clearance to **22** non-card holders.

### Library Activities:

1. An online user awareness programme of the **EBSCO Discovery Service** for searching the e- Library collection was organized through WebEx on 30 September, 2020.
2. A one day National Webinar on “**How to preserve library materials during pandemic situation?**” was jointly organized by the **Department of Library and Information Science, J.U. and Central Library, J.U.** on **16 October 2020**. Mr. Ashim Datta of Central Library coordinated the programme.
3. An online user awareness programme on “**Accessing E-books procured by Jadavpur University**” was conducted by **Cambridge University Press** and organized by the **Central Library** on 15 January, 2021.
4. An online user awareness programme on “**Accessing E-books procured by Jadavpur University**” was conducted by **World Scientific Press & De Gruyter** and organized by the **Central Library** on 18 January, 2021.
5. An online user awareness programme on “**Accessing E-books procured by Jadavpur University**” was conducted by **Sage Publication** and organized by the **Central Library** on 20 January, 2021.
6. An online user awareness programme on “**Accessing E-books procured by Jadavpur University**” was conducted by **Oxford University Press** and organized by the **Central Library** on 22 January, 2021.
7. Dr. Sanku Bilas Roy, Librarian, Salt lake Campus published a paper entitled “A Bibliometric analysis of information literacy research’ in the edited book entitled ‘Reorienting information literacy in the library and information centres’ published by Department of Library and Information Science, University of Calcutta.
8. Dr. Swaguna Datta delivered a lecture person in the Golden Jubilee Lecture Series 2, organized by Central Library, Maheshtala College, entitled “Tathye mahamari, apatathyer mahamari” (Information on pandemic; pandemic of misinformation) on 28 January, 2021.
9. Ms. Shrabani Majumdar acted as a panelist on “How to preserve Library material during pandemic situation?” on 16 October, 2020, jointly organised by Department of Library and Information Science, J U and the Central Library, JU.
10. Mr. Debashis Mukherjee acted as a panelist on “How to preserve Library material during pandemic situation?” on 16 October, 2020, jointly organised by Department of Library and Information Science, J U and the Central Library, JU.

## Annual Report 2020-2021

### MEMORANDUM OF UNDERSTANDING (APRIL 2020-MARCH 2021)

- Sl. No.–MoU/MoA Between–Date of Execution/Duration–Contact Person (s) /Address–Scope of Work :**
- G-1 **INSTITUTE OF BIORESOURCES AND SUSTAINABLE DEVELOPMENT (IBSD) & JU**–11.11.2020 5 years–Prof. Rajib Bandyopadhyay Dept. of Instrumentation and Electronics Engineering–Creation of a framework for collaboration between IBSD and JU
  - G-2 **ENDOWMENT DEED BETWEEN DR. BIPASHA PAL & JU**–25.11.2020–S.G.S.Jt. Registrar–Dr. Sailendra Nath Sarkar and Smt. Anuradha Sarkar Memorial Scholar
  - G-3 **ENDOWMENT DEED BETWEEN MRS. AJITA SEN & JU**–11.12.2020–S.G.S.Jt. Registrar–Jyotsna Devi Memorial Scholarship
  - G-4 **ENDOWMENT DEED BETWEEN MR. BIDYUT RANJAN MAJUMDER & JU**–11.12.2020–S.G.S.Jt. Registrar–Gita Mazumder Memorial Scholarship
  - F-5 **NORTH DAKOTA STATE UNIVERSITY (NDSU) & JU**–11.12.2020 3 years–Prof. Biswajit Mukherjee Dept. of Pharmaceutical Technology–Collaboration on certain research work and exchange ideas, proprietary research data and materials to further the research
  - G-6 **DBT & JU**–30.12.2020 2 years–Prof. Sougata Hazra School of Oceanographic Studies–Opportunities and trade off between the SDGs for food, welfare and the environment in deltas
  - G-7 **ASHOKA UNIVERSITY & JU**–08.01.2021 2 years–Dr. Samir Karmakar School of Languages and Linguistics–To build China Studies as a thriving discipline by seeding high-quality China Studies courses at JU
  - G-8 **CENTRAL COUNCIL RESEARCH in UNANI MEDICINE (CCRUM) & JU**–14.01.2021 36 months–Prof. Sanmoy Karmakar Dept. of Pharmaceutical Technology–Pharmacological studies on the probable mechanism of action of Khamira Gaozaban Sada (KGS) in the management of Hypertension, involving Quality Control and formulation optimization studies for this age old Unani preparation
  - G-9 **DBT & JU**–25.01.2021–Prof. Biswadip Das Dept. of Life Science & Biotechnology–monitoring and other matters related to the Functional Role of Nrd1-Sen1-Nab3 (NNS) trimeric protein complex in the Nuclear mRNA surveillance in *Saccharomyces cerevisiae*
  - P-10 **MAHA BODHI BOOK AGENCY & JU**–25.01.2021–Prof. Rupa Bandyopadhyay, Prof. Preetom Ghoshal Dept. of Philosophy–publishing the book entitled 'BHARATIYA DARSANASASTRERA VICARARITI'
  - F-11 **NIPPON FOUNDATION & JU**–28.01.2021–Dr. Tilottama Mukherjee Director, JU-SYLFF programme–RYOICHI SASAKAWA YOUNG LEADERS FELLOWSHIP FUND To support the education of students enrolled in Master's(MA), Master's of Philosophy(MPhil), and Doctoral (PhD) degree programs in the social sciences and humanities at Jadavpur University with high potential for leadership in national, regional and international affairs, in public life as well as in private endeavors by awarding fellowships.
  - G-12 **INDIAN INSTITUTE OF CEREBRAL PALSY (IICP) & JU**–05.01.2021 3 academic sessions–Dr. Mukti Pada Sinha Dept. of Education–2 years course in B.Ed. Special Education (Multiple Disabilities)
  - F-13 **UiT The Arctic University of Norway & JU**–08.02.2021 5 years–Prof. Ananda S Chowdhury Dept. of Electronics and Telecommunication Engineering–Both parties will encourage direct contact and cooperation between their research and administrative staff, departments and research institutions
  - F-14 **UNIVERSITY OF LA ROCHELLE, FRANCE & JU**–10.02.2021–Prof. Ananda S Chowdhury Dept. of Electronics and Telecommunication Engineering–Parties aiming at establishing scientific, teaching and research relations
  - G-15 **Translational Health Science and Technology Institute, Faridabad (THSTI) & JU**–10.02.2021 5 yrs.–Prof. Nandadulal Bairagi Coordinator CMBE–To share the infrastructural facilities and resources such as library and documentation, instrumentation etc.exchange of students, faculty for teaching and research...
  - G-16 **NIT, ROURKELAHIT, KHARAGPURICT, MUMBAI & JU**–02.03.2021 w.e.f. - 01.10.2020 3 yrs or more–Prof. Papita Das Dept. of Chemical Engg.–Zeolite-based Low-cost Hybrid Membrane Photo-Bioreactor System for Treating and Recycling of High Strength Industrial Wastewater (IMP/2018/001261/EC)
  - G-17 **MR. SUBIR BHOWMIK MR. SANJAY BASU & JU**–25.03.2021–Dr. S.G.S.Jt. Registrar–Endowment Deed for establishing 'Late Ambar Basu Endowment Fund'

[ G - General, P - Publisher, F - Foreign

**Annual Report 2020-2021**

**NEW PROJECTS**  
**April 2020 - March 2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
A. K. PAL	Free Standing...BMS Materials	UGC DAE	Sc.	05/07/2015	2,63,400
A. K. PAL	Realization of Oxide based Solar ..... with improved	DST	Engg.	09/10/2018	1,02,79,523
AMALESH SAMANTA	FABRICATION AND...CARE TOOL	DRDO	Engg.	28/3/2018	15,91,798
AMALESH SAMANTA	Fabrication and Characterization of natural Polysaccharide Based Bioerodible Localised Spongy Scaffold A Potential Role in Augmenting Wound Healing	DST	Engg.	20/04/2018	16,81,800
AMITAVA DATTA	FOR OPTIMIZATION...EFFICIENCY	LPG	Engg.	07/01/2017	6,91,668
AMITAVA GUPTA	VISION GUIDED...PLANETARY MISSION	ISRO	Engg.	29/10/2019	26,32,000
AMIT KONAR	LIVERPOOL HOPE UNIVERSITY	Liverpool hope University	Engg.	08/01/2020	12,00,000
AMRITA KUNDU	Cyclic Plastic Deformation Behaviour of 304LN Austenitic Stainless Steel Room Temperature to 550deg C	DST	Engg.	09/09/2016	39,51,675
ARUNABHA THAKUR	SYNTHESIS AND APPLICATION OF...BORON ATOMS	CSIR	Sc.	05/01/2019	6,00,000
ARUNIMA SENGUPTA	AMPK FOXO AND NFATC3 transcription factor function in regulation of cardiomyocyte proliferation	DBT	Engg.	21/02/2017	22,11,951
ARUNIMA SENGUPTA	identification of a novel function...protection in vivo	SERB	Engg.	13/12/2020	55,03,260
ARUP GAYEN	Tailored Nanostructure and Nanocomposite Oxide Materials for Steam and Dry Reforming of Methane	DST	Sc.	18/01/2017	61,15,230
ATANU SAHA	STUDY AND RESEARCH...XIITH PLAN PERIOD	UGC	School	04/06/2016	1,33,50,000
ARISH CHATTAPADHYAY	AGRICULTURE CULTIVATION.....L,PLANT	WBDST	Engg.	24/06/2019	12,90,000

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
BHARATI TUDU	Perpendicularly polarized spin transport in semiconductors: An investigation using Electrical spin injection and detection	DST	Sc.	27/11/2018	40,19,180
BHASKAR GUPTA	Miniature Antenna..in Swan	SERB	Engg.	30/12/2020	30,44,406
BHASKAR SARDAR	Novel Solutions Using Innovations on the Proposed LTE A D2D Communication Model for Smart Governance in the 5G Era	DST	Engg.	19/03/2018	36,56,000
BIBHAS CHANDRA GIRI	Mathematical model development.....under uncertainties	DST	Sc.	13/06/2018	6,60,000
BISWADIP DAS	Uncovering Nuclear Machinery Involved in the Turnover of Ribosomal and Other Non-Coding RNAs in Saccharomyces Cerevisiae	CSIR	Engg.	01/06/2016	39,96,000
BISWAJIT GHOSH	Studies on electrokinetic effect from photovoltaic system	CSIR	Engg.	01/09/2018	14,76,000
BRAJADULAL CHATTOPADHYA	A Study of Anti Hyperglycemic properties of Gymnedenia Orchidis Lindl of Orchdaceae Family	RSSD	Sc.	01/01/2017	9,75,000
CHANDAN KUMAR GHOSH	Development of Energy Composite	Imprint	School	11/01/2019	15,48,000
CHANDREYEE CHOWDHURY	developing framework for indoor location data infrastructure	NRDMS	Engg.	29/10/2020	24,35,224
DEBABRATA BERA	Strategic Assessment of Traditional Bandel Cheese and its Production for Economic Development of Local People	DST	Engg.	27/12/2016	18,57,000
DEBAJIT DATTA	Spatially explicit estimation of wetland carbon stocks in the Contai-Baleshwar Coastal Stretch, India by integrating elemental analysis and Geospatial Technologies	DST	Arts	26/11/2018	30,33,800
DEBAJYOTI GHOSHAL	Design of entangled dynamic metal organic frameworks for hydrogen storage property	DST	Sc.	25/10/2018	44,79,200
DEBAJYOTI GHOSHAL	SYNTHETIC STRATEGIES OF DIFFERENT GASES	WB DST	Sc.	26/03/2018	4,00,000
DEBASHIS CHATTERJEE	A Wind Solar Application	MNRE	Engg.	03/01/2017	15,73,000
DEBESH KUMAR DAS	Development of Industrial Open Source Development	DST	Engg.	13/12/2018	23,68,996
DEBOTOSH BHATTACHARYYA	Development of a computer-assisted diagnosis system.and disease diagnosis	DST	Engg.	31/03/2019	8,83,000

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
DIPAK CH. PAL	Sedimentological, Petromineralogical and geochemical.... eastern India	DAE	Sc.	18/05/2018	25,17,625
DIPANKAR DAS	Sevak - An intelligent Indian Language chatbot	Imprint	Engg.	11/06/2019	98,64,300
DIPTEN MISHRA	Estimation of Laser wind loads	DRDO	Engg.	14/03/2019	45,20,304
FAROOK RAHAMAN	Theoretical Study on Dark Matter Gravastar and Wormhole Spacetimes	DST	Sc.	15/03/2017	8,03,000
GOPAL CH SHIT	Modelling of Electro Osmotic Flow and Heat Transfer in a Micro Channel for Microfluidic Applications	DST	Sc.	11/05/2017	20,32,000
JOYDEEP CHOWDHURY	Fabrication of Highly Biological Sensing	CSIR	Sc.	01/05/2018	15,23,417
JOYDEEP CHOWDHURY	lab on chipssers	WBDST	Sc.	10/11/2018	13,57,880
JOYDEEP MUKHERJEE	Mining the Genome and Metagenome of Marine Microbiome For Pks-Nrps Biosynthetic Gene Clusters and Bioactive Small Molecules:A Coordinated R&D Initiative in Marine Genomics	DBT	School	28/3/2016	33,80,779
JOYDEEP MUKHERJEE	BIOREMEDIATION OF SUNDARBAN ETC	WBDBT	School	31/03/2018	7,91,340
JOYDEEP MUKHERJEE	INVENTORISATION OF PLASTIC....WB	WBPCB	School	11/11/2019	14,16,000
JOYDEEP MUKHERJEE	Application of Membrane Industry Waste	Shastri indo canadian	School	11/10/2017	5,00,000
KAJAL K. RAJAK	Chemistry of Rhenium Incorporating Polydentate Lengends Synthesis Characterization Optical Properties and DFT Studies	WB DST	Sc.	22/1/2016	13,67,500
KAJARI KARGUPTA	Solar energy driven Green Hydrogen Generation from Water using Reduced Graphene Oxide based	DST	Engg.	15/09/2018	43,96,800

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
	Photo-catalyst and Co-catalyst				
KALLOL PAUL	Birkhoff-James orthogonality and its application in the geometry of Banach spaces	DST	Sc.	25/06/2018	6,60,000
KAUSTUV DAS	Fabrication of Infrared with Nanostructures	DST	Sc.	15/09/2018	14,85,000
KAUSTUV DAS	Study of Zinc Oxide.... high relative humidity	DST	Sc.	03/07/2018	6,21,750
KUNAL ROY	APPLICATION OF QSARs...IMAGINING AGENTS	DAE BRNS	Engg.	01/05/2018	29,76,700
KUNAL ROY	Development Toxic Legs	DSTCEN	Engg.	19/02/2020	6,60,000
MADHUMITA ROY	Studies on City	WB Development of Environment	Arts	03/07/2018	9,00,000
MAHAMMAD ALI	Metalion Sensors Synthesis Recognitions and Protein Binding Studies	CSIR	Sc.	01/05/2017	10,00,000
MAHAMMAD ALI	Copper Complexes in Biomimetics and Oxidation Catalysis	WBDST	Sc.	22/1/2016	11,21,800
MAHUA GHOSH	Synthesis of Drug (Herbal Values) Entrapped Nano Material to Treat Cancer Disease and Other Disease Causing Organisms	DST	Engg.	29/05/2018	15,98,800
MANAS KUMAR PANDA	DESIGN SYNTHESIS AND APPLICATION OPTICAL MATERI	SERB	Sc.	12/10/2020	27,61,000
MANISHA CHAKRABORTY PI	Studies and Demices	UGC	School	04/01/2013	8,34,800
MONORANJAN KHAN	TIME DEPENDENT FLUID DESCRIPTION	CSIR	Sc.	04/01/2017	4,50,000
MEHABUB RAHAMAN	Hywater Treatment of Contaminated Drinking Water Using a Hybrid Low Cost Process	DBT	Engg.	30/11/2015	26,26,800
MITALI MONDAL	Study on QGP and its properties ion collisons	DST	Sc.	29/06/2018	3,27,600



**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
MOUMITA GHOSH	Integration of data mining in biodiversity application to forest diversity	DST	Engg.	04/01/2019	17,10,000
NANDADULAL BAIRAGI	Modelling and Analysis Nonlinear incidence	CSIR	Sc.	01/04/2018	18,96,000
NANDADULAL BAIRAGI	ANATOMY OF COVID-19 TRANSMISSION PERSPECTIVE	DSTCEN	Sc.	07/06/2020	5,50,000
NANDADULAL BAIRAGI	Emergent Dynamics in Ecological Networks Spreading of Disease and Its Control	DST	Sc.	06/02/2017	20,70,915
NANDITA BANERJEE DHAWAN	Goldsmiths College University	Goldsmith college of land	School	16/07/2019	4,21,232
NANDITA BANERJEE DHAWAN	Dip Stick Assessment Children	WBCPCR	School	26/11/2018	5,00,000
NIBARAN DAS	Automatic generation of ..... deep learning	DST	Engg.	18/03/2019	26,93,500
NIBIR MONDAL	Physical Behaviour of Natural Silicates and Oxides and its Implication in Environmental Studies: A Computational Approach	DAE	Sc.	14/07/2016	37,73,850
NIBIR MONDAL	J.C. Bose	DSTCEN	Sc.	09/01/2017	6,25,364
NITIN KUMAR CHATTOPADHYAY	UNUSUAL Fluorescence SOLVATION	SERB	Sc.	23/12/16	47,74,000
PALLAB KANTI HALDAR	Phytopharmaceutical Development Dermal Leishmaniasis	DBT	Engg.	25/09/2019	30,26,360
PALLAB KANTI HALDAR	STUDIES ON ANTI-SARS-COV-2 INFECTION	Collaboration DBT and ayush	School	24/08/2020	5,70,000
PALLAB KANTI HALDAR	In Vitro and In Vivo Screening of Phytoconstituent Against Streptozotocine Induced Metabolic Disorder	DST	Engg.	23/11/2016	14,63,000
PALTU KUMAR DHAL	Endophytic Bacterial Community of Rice Root for Higher Rice Production	DST	Engg.	27/02/2019	38,19,000
PALTU KUMAR DHAL	Indigenous microorganism based technology for... plants in India	UNES	Engg.	30/11/2018	20,18,625

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
PANKAJ KUMAR ROY	Scientific Assessment of Coastal CLIMATE Scenario	DSTCEN	School	28/06/2019	35,53,176
PANKAJ KUMAR ROY	Study to Develop Appropriate Methods for Safe Disposal of Arsenic-Rich Sludge	DST	Engg.	01/06/2018	10,55,800
PAPITA DAS	Role of Carbonaceous Materials And Cellulose Nano Fibres Polymeric Composite for treatment of Multiple Pollutants Present in Waste Water	DGH	Engg.	15/12/2017	19,50,000
PAPITA DAS	Synthesis of graphene oxide coated natural waste materials and its application for simultaneous treatment of wastewater containing fluoride and chromium: Reactor performance in batch, fluidized bed and membrane reactor	DST	Engg	22/03/2019	37,38,000
PAPITA DAS	Synthesis of reduced technique	UGC-DAE	Engg	06/01/2019	15,30,000
PAPRI DASGUPTA	Study of Thermoelectric Magnetocaloric Magnetoresistive and Other Thermo Physical properties of Huesler Alloys	DST	Sc	20/12/2017	27,20,000
PARAMITA BHATTACHARJEE	GAMMA IRREDIATION CHINSURAH HOOGHLY	MFPI	Engg	01/10/2012	33,11,468
PARAMITA BHATTACHARJEE	Studies on Gamma Produces	DFPI	Engg	16/09/2016	37,50,000
PARAMITA BHATTACHARJEE	VOLARISATION OF TOMATOES FOOD SUPPLIMENT	WBDST	Engg	21/012/2020	17,10,800
PARIMAL KARMAKAR	DEVELOPMENT OF BURN WOUND	DBT	Engg	08/07/2018	14,99,800
PARIMAL KARMAKAR	TO ASSESS SUB PATHWAYS	SERB	Engg	22/03/2017	40,70,000
PARTHA PRATIM ROY	Vaccum Deposition of Fluorinated Zinc Phthalocyanine and Oligothiophene Based Plasmonic Tandem Solar Cell	DST	Sc	17/08/2017	46,14,417
PARTHA PRATIM ROY	Realization of High Efficiency Interdigitated Back-Contact(IBC)	WBDST	Sc	31/7/2015	3,96,500

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
PRITI KR ROY	DEVELOPMENT OF MODELS APPROACHES	DST CN	Sc	12/05/2018	10,56,400
PRIYANKA GHOSH	Reduced Grapheme Oxide Sulfonated Polybenzimidazole Nano Composite for Fuel Cell Electrolyte and Supercapacitor Application	DST	Engg	31/12/2016	18,50,000
PULAK KR. MUKHERJEE	Medicinal plants of Cucurbitaceae family Therapeutic Evaluation	DST	Engg	24/07/2018	50,90,800
PUSPENDU SAHU	STACKING FAULT ENERGY....STEELS	SERB	Sc	03/04/2020	42,65,986
PVENKATE SWARAN	We Robotics Inc. United States	Werobotics	Engg	11/01/2019	10,54,904
RADHA BALLAV BHAR	Structural Properties and Astrophysical Applications of Quantum Fluids	DST	Engg	17/08/2017	32,64,360
RAJAT CHAKRABORTY	Intensification and Optimization.....Through Novel Protocols	UGC	Engg	07/01/2015	14,29,000
RAJAT CHAKRABORTY	sustainable production of Agro industry wastes	WBDST	Engg	30/05/2019	14,62,800
RAJIB DE	Design of nano carriers for sustained release of conventional analgesic drugs	DST	Engg	05/06/2018	15,17,000
RANJAN GANGULY	OPTIMIZING HARVESTING	SERB	Engg	26/02/2020	46,23,024
RANJIT KR BARAI	Design, Development and Control of a Light Computation	DST	Engg	12/07/2018	47,85,945
RATNA GHOSH	Orbit Parameter Refinement Applications	ISRO	Engg	02/04/2020	22,87,000
RATNA GHOSH	To explore the possibility An individual	TCS	Sc	10/01/2019	14,09,400
RINA GHOSH	Synthesis of Oligosaccharides and Glycoconjugates Related To Salmonella O-antigen With Special Reference To One-Pot Glycosylation Reactions	CSIR	Sc	01/04/2018	11,71,000
RUP KUMAR BARMAN	HISTORICAL LRGACY NORTH BENGAL	ICSSR	Arts	23/12/2019	9,00,000

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
SACHINDRA NATH DAS	FABRICATION OF SUPERCAPACITORS	SERB	Sc	27/01/2020	39,54,777
SACHINDRA NATH DAS	Study on optoelectronic properties of mixed halide hybrid perovskite material synthesized by mechanochemical method	DST	Sc	30/07/2018	7,65,300
SADHANA M. CHATTERJEE	Structural and Petrological Term India	CSIR	Sc	09/01/2019	15,50,000
SADHAN KUMAR GHOSH	BIO-MIMETIC WATER	DBT	Engg	24/06/2019	40,30,000
SADHAN KUMAR GHOSH	OCEAN PLASTIC TURED...ECONOMY	Foreign fund	Engg	24/03/2021	2,74,671
SAIKAT DEWANJEE	Strategies for Dereplication of Novel Anti Diabetic Leads From Myrica Esculenta : A Skkim Himalayan Plant	CSIR	Engg	01/12/2016	22,96,000
SAIKAT KUMAR SETH	QUANTITATIVE ANALYSIS OF BEHAVIOUR	SERB	Sc	27/02/2019	34,15,775
SAMANTAK DAS	GENDER IMPACTS ON...DURING COVID -19	Foreign fund	Arts	18/12/2020	8,49,694
SAMARESH BHATTACHARYYA	Formation and Utilisation Catalytic Applicatio	CSIR	Sc	07/01/2019	12,00,000
SAMIR KARMAKAR	Syntactic and Semantic Constructions	CSRI	School	08/07/2020	44,36,840
SAMIT GUHA	Molecular Recognition and Sensing at the Lipid Bilayer-Water Interface and Inside the Lipid Membrane	DST	Sc	06/07/2018	46,04,000
SANDIP SARKAR	FERROFLUID DRUG DELIVERY SYSTEM	DERB	Engg	20/01/2019	21,65,900
SANGITA CHATTERJEE	Estimation of errors in the measurement of mass from gravitational wave (cw) data	DST	Sc	02/02/2019	14,19,000
SARMISTHA NEOGY	Development of High Speed MAAANET for Intelligent Collaboration	DROD	Engg	14/03/2019	64,35,650
SAURABH DAS	To Explore the Ecules	UGC DAE	Sc	06/01/2021	5,25,000

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
SAYAN CHATTERJEE	AICTE Career Award for Young Teachers	Aicte	Engg	23/02/2021	33,75,196
SHELI SINHA CHAUDHURI	NEURO FUZZY SYNERGISM....CLASSIFICATION	Isro	Engg	29/10/2019	21,03,000
SISIR KANTI MONDAL	Petrologic, OS isotopic implications for chemical mineralization	DST	Sc	01/02/2019	71,29,425
SOUMIK MUKHOPADHYAY	BASIN EVOLUTIONARY KARNATAKA	DAE BRNS	Sc	18/05/2018	38,88,900
SOURAV SARKAR	Size selective carbon quantum dots and its application to luminiscence and solar cell	Dst	Engg	11/03/2019	44,89,000
SUBARNA BHATTACHARYYA	Insitu monitoring of fungal using foldscope microscope	DBT	Sc	11/04/2018	8,00,000
SUBARNA BHATTACHARYYA	Inhibition of Fungal Radiation	UGC DAE	School	06/01/2019	15,90,960
SUBARNA BHATTACHARYYA	Profiling indoor air borne plant extracts	DST	Sc	01/11/2018	11,99,800
SUBENYOY CHAKRABORTY	Symmetries in Differential Equation and Its Application to Classical and quantum Cosmology	DST	Sc	25/08/2018	6,60,000
SUBHASH CHANDRA BHATTACHARYA	Fundamental Investigation Diverse Application	SERB	Sc	01/12/2016	32,31,800
SUBHASH CH. MONDAL	Chemical Profiling of Joha and Black rice of NER for Nutritional Nutraceutical Paramters and Aromatic Compounds	DBT	Engg	27/10/2016	38,96,000
SUBIR SARKAR	Basin evolutionary history and microbial mat proliferation Karnataka	DAE	Sc	18/05/2018	36,49,950
SUBRATA KARMAKAR	Petrological Zone(SSZ)	DAE BRNS	Sc	08/02/2018	31,20,250

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
SUBRATA NATH KONER	Chiral Induction into Metal-Organic Frameworks for Heterogeneous Asymmetric Catalysis	CSIR	Sc	01/05/2018	5,25,000
SUBRATA SARKAR	Synthesis of Bismuth Oxyhalides and its Composites for Enhanced Photocatalytic Activity A Little Step Towards a Pollution free Environment	DST	Sc	28/03/2018	37,95,000
SUCHANDRA BARDHAN	Geoinformatic Led Inquire Better Planning	WB DST	Arts	19/07/2019	7,84,800
SUDESHNA BANERJEEA	Integral equation and its application to the problems on interaction of water waves with obstacles present in ocean	DST	Sc	25/06/2018	6,60,000
SUGATA HAZRA	OPPORTUNITIES AND TRADE IN DELTAS	Ukieri	School	13/02/2020	6,08,281
SUGATA HAZRA	GCRP PUMPPRIMING PRESURV	Foreign Fund	School	13/02/2020	10,89,705
SUJOY BAITALIK	Design of Multichannel Receptors for Anions by Taking Profit of Metal-Ligand Interaction	CSIR	Sc	01/05/2018	3,66,667
SUKHEN DAS	Waste water remediation: novel use nanocomposites	DST	Sc	30/03/2019	24,01,500
SUNIPA MONDAL	Systematic study of molluscs and other benthic faunal diversity transition in Kutch, Western India	DST	Sc	26/03/2019	12,81,000
SUNITA ADHIKARI	Performance Modeling of a Combined System of Phycoremediation with a Fixed Film Bioreactor for the Treatment of Dairy Industry Waste Water	DST	Engg	01/10/2016	42,92,440
SUNITA ADHIKARI	Fermentative Production of Microbial Asparaginase Enzyme and its Application to high Temperature Processed Foods For Acrylamide Mitigation	DST	Engg	02/07/2018	17,44,000
SUSMITA GHOSH	Distributed Cognitive System for Health Care	Ministry of Electronics nad International Technology	Engg	28/02/2020	24,00,000

**Annual Report 2020-2021**

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
SWATILEKHA ROY	Investigation of optical properties of metal nanoparticles embedded conducting polymer	DST	Sc	22/05/2018	21,40,000
TAPAN KR MONDAL	Fabrication & Synthesis Spcies	CSIR	Sc	05/01/2019	8,00,000
TAPAN KR MONDAL	Synthesis of new and Platinum Biological activity	DST	Sc	06/03/2019	17,98,500
TARIT ROYCHOWDHURY	arsenic and other contaminants technology	SERB	School	24/01/2019	55,32,000
TARIT ROYCHOWDHURY	Studies on chronic exposure to arsenic toxicity through food chain and drinking water with respect to rice grain contamination in selected sites of West Bengal and search for mitigation options	DST	Sc	26/06/2018	25,99,600
TITAS NANDI	REUSE OF CUPOLA SLAG MANUFACTURING	WB DST	Engg	23/11/2020	18,91,600
TRIDIP MONDAL	Fabric Analysis and Tectonic Stress Determination in the Rocks of Chitradurga region Implications for Upper Crustal Fluid Flow	DST	Sc	01/02/2017	10,68,200
TUHINADRI SEN	Pharmacological Studies Drug Resistance	UGC	Engg	07/01/2015	1,02,000
TUMPA HAZRA	Investigation of the Use...Waste Management	WB DST	Engg	15/01/2021	9,40,800
UJJWAL MAULIK	Computational Social Science Management	Matrix	Engg	20/02/2020	2,20,000
RUMA ROY	Tailoring of electrical and magnetic in reduced graphene oxide	DST	Sc	19/03/2019	5,11,998
SOUMEN GHOSH	Collodial and Solution Behaviour of Carbohydrate Based Polymer in Presence of Surfactant,Electrolyte and Non-Electrolyte Including Solvent	CSIR	Sc	01/06/2016	18,96,000
PARTHA BHATTACHARYA	Structural Health Check up of Mahananda Bridge	WBIW	Engg	06/12/2016	12,85,000
SANGITA CHATTERJEE	Estimation Errors Data	Women Scientist	Sc	01/04/2019	1,25,000

### Annual Report 2020-2021

<b>PROJECT INVESTIGATOR</b>	<b>2020-2021</b>	<b>Funding Agency</b>	<b>Faculty</b>	<b>Starting Date</b>	<b>Cost</b>
INDRANI ROY	Study of a few A 100 and 180	Women Scientist	Sc	15/07/2019	5,00,000
PRITHA BANERJEE	Analutical modeling and circuits	Women Scientist	Engg	30/11/2019	16,40,347



## Annual Report 2020-2021

### OFFICE OF THE DEAN OF STUDENTS

Phone : 033-2414-6188

033-2457-2279/2386

Dean of Students : Dr. Rajat Ray

E-mail: deanstudents@jadavpuruniversity.in

#### ANNUAL REPORT FOR THE SESSION 2020-2021:

##### HOSTELS

**Jadavpur University** is not a residential university. However, we try our best to provide accommodation to needy students from areas outside Kolkata or from other parts of the country.

##### No. of Hostels:

###### (for Main Campus)

• Boys Hostel (UG) – 04 Nos.	675 Boarders
• Boys Hostel (PG) – 03 Nos.	225 Boarders
• Boys Hostel (RS cum PG) – 01 No.	30 Boarders
• G.C. Sen Memorial Chhatrabas– 01 No.	100 Boarders
• (Boys' Hostel) (Physical Education)	
• Women Hostel – 03 Nos.	562 Boarders

###### Total Intake Capacity:

###### (for Salt Lake Campus)

• Salt Lake Campus Hostel (Boys) – 01 No.	260 Boarders
• Salt Lake Campus Hostel (Girls) – 01 No.	60 Boarders

##### Name of the Hostel Superintendents as on 31/3/2021 :

###### HostelSuperintendent:

• A-1 Block Main Hostel	Sri. Tapan Jana
• A-2 Block Main Hostel	Sri. Tapan Jana
• B Block	Sri. Dipayan Datta
• C & D Block	Sri. Dipayan Datta
• New Block Hostel	Sri. Goutam Mukherjee
• Old P.G. Hostel	Sri. Goutam Mukherjee
• New P.G. cum R. S. Hostel	Prof. Subarna Kr. Das/Dr. Tapan Ray
• New Boys Hostel	Dr. Tapan Ray
• G. C. Sen Memorial Hostel	Prof. Sridip Chatterjee/ Dr. Tapan Ray (Officiating)
• Women Hostel -1	Smt. Aparna Kar Chowdhury
• Women Hostel – 2	Smt. Gulsenara Khatun
• Women Hostel – 3	Smt. Keya Roy
• Salt Lake Campus Hostel(Boys)	Sri. Shibsankar Bhunia
• Salt Lake Campus Hostel(Girls)	Smt. Ashima Das Prof. Runu Bannerjee(Ray) (Part-Time)

##### FACILITIES AVAILABLE AT EACH HOSTEL:

# T.T. Room, # Common Room, # Canteen, # Magazine & Newspapers, # Play Ground, # Television, # Visitors Room, # Security Arrangement, # Telephone, # Internet (Partial), # K.M.C. Drinking Water # Water Cooler cum Purifier .

## Annual Report 2020-2021

▪ **L.P.G. as Cooking Fuel at hostel-kitchens:**

All the kitchens of the Jadavpur University Hostels have been equipped with Liquid Petroleum Gas (on subsidized rate) as cooking-fuel. So the cooking at the hostel has become very easy, instantaneous, hygienic, controlled with less time/effect in respect to earlier system (coal).

**\*\*Number of students applied for hostels and students allotted hostel seats in the year 2020-2021**

No Fresher students (Boys/Girls) who got their admission in the Academic Year 2020-21 with various courses (UG/PG/M. Phil./Ph. D.) and Non-Fresher students (Boys/Girls) under all the three Faculties of the University were allotted hostel seats as all the hostels of the University were closed due to the Measures taken by the University to stop the spread of Pandemic in relation to Novel Corona Virus (**COVID-19**) as per Government Directives.

**CONCESSION IN FEES:**

The concession in fees, in terms of full and half-free studentship, are awarded to needy students of the day – courses as well as evening courses (except Engg. Evening students) on the recommendation of the University constituted Committee. After due notification by the Dean of Students, application forms, are issued at the beginning of the session, from the Office of the Dean of Students.

- Following no. of students have been granted free-studentship in due year 2020-2021.

**STATEMENT ON FREESHIP FOR THE SESSION 2020-2021**

<b><u>FACULTY OF ARTS</u></b>				
<b>Sl. No.</b>	<b>Department</b>	<b>Full Free</b>	<b>Half Free</b>	<b>Total No. of Beneficiaries</b>
1.	Bengali	69	43	112
2.	Comparative Literature	11	nil	11
3.	Economics	12	nil	12
4.	Education	19	92	111
5.	English	06	nil	06
6.	Film Studies	nil	nil	nil
7.	History	57	30	87
8.	International Relations	46	nil	46
9.	Library & Info. Science	19	05	12
10.	Philosophy	57	35	92
11.	Physical Education	15	07	22
12.	Sanskrit	60	40	100
13.	Sociology	12	nil	12
14.	Linguistics	02	nil	02
	<b>Total</b>	<b>397</b>	<b>252</b>	<b>649</b>

### Annual Report 2020-2021

<b>FACULTY OF SCIENCE</b>				
1.	Chemistry	41	nil	41
2.	Geography	01	nil	01
3.	Geological Sciences	10	nil	10
4.	Instrumentation Science	02	nil	02
5.	Life Science & Bio-Tech. Engg.	05	nil	05
6.	Mathematics	49	02	51
7.	Physics	52	nil	52
	<b>Total</b>	<b>160</b>	<b>02</b>	<b>162</b>
<b>FACULTY OF ENGINEERING &amp; TECHNOLOGY</b>				
1.	ACEE: Journalism & Mass Communication	09	18	27
2.	Architecture	03	nil	03
3.	Chemical Engineering	38	20	58
4.	Civil Engineering	26	15	41
5.	Computer Science & Engg.	28	nil	28
6.	Electrical Engineering	26	16	42
7.	Electronics & Tele-Comm. Engg.	18	nil	18
8.	Food Tech. & Bio- Chemical Engg.	15	07	22
9.	Mechanical Engineering	30	16	46
10.	Met. & Mat. Engineering	11	nil	11
11.	Pharmaceutical Technology	45	17	62
12.	Production Engineering	11	nil	11
	<b>Total</b>	<b>260</b>	<b>109</b>	<b>369</b>
<b>SALT LAKE CAMPUS</b>				
13.	Construction Engineering	12	nil	12
14.	Information Technology	05	26	31
15.	Instrumentation & Electronics Engg.	11	02	13
16.	Power Engineering	07	10	17
17.	Printing Engineering	10	nil	10
	<b>Total</b>	<b>45</b>	<b>38</b>	<b>83</b>

## Annual Report 2020-2021

- **FINANCIAL ASSISTANCE:**

One time Financial Assistance has been given from University's Fund to the needy students for their continuity and effective study at Jadavpur University.

**31 (Thirty One)** students received Financial Assistance @**Rs. 2,000/- (Rupees Two Thousand only)** each.

**72 (Seventy Two)** students received Financial Assistance @**Rs. 3,000/- (Rupees Three Thousand only)** each.

**64 (Sixty Four)** students received Financial Assistance @**Rs.5,000/- (Rupees Five Thousand)** each.

**15 (Fifteen)** students received Financial Assistance @**Rs.8,000/- (Rupees Eight Thousand only)** each.

- In addition to granting Free-ship and awarding Endowment Scholarship / Other Scholarship, few students were financially helped by the University for the Continuity of their study as special cases.

### **ANTI-RAGGING ACTIVITIES:**

Jadavpur University has accepted all the directions / guideline issued by Hon'ble Supreme Court of India and regulatory bodies to eradicate ragging in the university campuses. Jadavpur University is working intensively from the very beginning of issue of such directions in the year 1998. Following activities (in brief) were taken up in the year 2020-21 to stop ragging in the campuses –

#### **Actions taken for prevention of ragging in the year 2020-2021**

1. The Anti-Ragging Committee and Anti-Ragging Squad have been re-constituted as per the latest circular of the UGC on the title "UGC Regulation on Curbing the Menace of Ragging in Higher Educational Institutions, 2009."
2. There are thirty-seven Departmental Anti-Ragging Volunteer Teams, fourteen Hostel Anti-Ragging Volunteer Teams and two Common Area Anti-Ragging Volunteer Teams covering both the campuses.
3. The first Anti-ragging Committee meeting with the members of newly constituted body for taking actions for the year 2020-21.
4. A few Anti-ragging Committee meeting with the Heads of all the departments under Faculty of Engineering and Technology was held on **virtual platform**, for taking appropriate Anti-Ragging measures as per the direction of the UGC and AICTE
5. Circular has been issued by the Registrar of the University about the constitution of the Anti-Ragging Committee 2020-21 with the names of the Anti-Ragging Committee members and their telephone numbers, wherein the responsibility and accountability of the university community towards curbing the menace of ragging was stated.
6. Circular has been issued by the Registrar of the University about the constitution of the Anti-Ragging Volunteer Team Members with the names for Departments, Hostels and Common Area, wherein the responsibility and accountability of the university community towards curbing the menace of ragging was stated.
7. Circular has been issued by the Registrar of the University about the constitution of the Anti-Ragging Squad 2020-21 with the names and Mobile Numbers of the Members was stated.
8. The Anti-Ragging Committee held meetings, to discuss and resolute on a few ragging issues on Virtual Platform during the Academic Year 2020-21.

## Annual Report 2020-2021

### OFFICE OF THE DIRECTOR OF PHYSICAL INSTRUCTION

#### SPORTS BOARD

Phone: 033-2457-2309

Director: Dr. Aparup Konar

E-mail: dir.phy.ins@jadavpuruniversity.in

#### MISSION:

Keep focusing to inculcate a healthy sporting culture and facilitate the sense of well-being in the society by taking sports a new height with the aim to generate the feeling of national pride & identity.

#### VISION:

- To access sports as a fundamental right to all
- To promote health and fitness among the students
- To provide a vibrant sports environment
- To bring out talented sports persons
- To give wide exposure in the field of sports to university community into the hall of fame
- To develop healthy relationship amongst students through sports
- To enhance quality and standard of sports performance
- To turn out to be a true sportsman not merely in the playfield but also in the game of life too

**N.B.: No competition of National University Games was conducted by the AIU due to the pandemic of Covid-19 for the session 2020-21.**

**Sports Achievement & Participation other than National University Games for the session 2020-21:**

#### A. TABLE TENNIS:

**SURBHI PATWARI** of UG-2, Economics won **Two Bronze Medals** in “*2<sup>nd</sup> Bengal State Table Tennis Championship 2020*” held at Ramgarh Pragati Sangha Table Tennis Academy, Kolkata from 7-15 December 2020 organized by Bengal State Table Tennis Association-1 & Ramgarh Pragati Sangha Table Tennis Academy under the auspices of Table Tennis Federation of India:

- a) Secured **3<sup>rd</sup> position** in Womens’ Single event
- b) Got **3<sup>rd</sup> position** in Youth Girls Single event

#### B. ROWING:

Following two Rowers of Jadavpur University Women Team achieved **three Gold & One Bronze Medals** in the “*State Rowing Championship 2021*” held from 27 January to 28 February, 2021 organized by West Bengal Rowing Association

1. **SHREYAA BRAHMACHARI**, French Language Course brought **Gold** in 2km Ergometer event, **Gold** in 500m Double-scul event and **Bronze** in 500m Ergometer event.
2. **SHRAMANA SAHA** of PG-2, English won **Gold** in 500m Fours event.

#### C. CHESS:

Following Seven Chess players of Jadavpur University represented India in the “*1<sup>st</sup> FIDE World University Online Chess (Blitz) Championship 2021*”, organized by the University of Texas Rio Grande Valley held from 14-18th March 2021.

SL. No	Name of The Player	Class/Department	FIDE ID	FIDE Rating
1	KAUSTUV KUNDU	UG-3Geological Science	5056900	2301
2	ARPAN DAS	UG-3Philosophy	5007208	2092
3	DEBANKAN DHARA	UG-3Chemical Engineering	5056586	1951
4	ANEK DAS	UG-2International Relations	25076930	1838

## Annual Report 2020-2021

5	ARKA SENGUPTA	UG-2IT Engineering	25031201	1937
6	RITABROTO GANGULY	UG-2Computer Sc. Engineering	25028529	1900
7	ANGIRA CHOUDHURI	UG-3Chemistry	25076949	1500

KAUSTUV KUNDU, Department of Geological Sciences, UG-III has **participated** in the “*Bangladesh Premier Division Chess League*” held from 19th to 29th March, 2021.

**Publication / Paper Presentation / Workshop / Webinar Participation by:**  
**Dr. Aparup Konar, Director of Physical Instruction**

### **Paper (Book Chapter) Published:**

“*Exercise in Immune Health Management and Rehabilitation against COVID 19*” Book Title & Publisher: Health Care Waste Management and Covid – 19 Pandemic by **Springer** Nature (Accepted for publication).

### **Paper Presented:**

“*Exercise in Immune Health Management and Rehabilitation against COVID 19*”, 10th International Conference on Sustainable Waste Management towards Circular Economy 2020, held from 2-7 December, 2020 on virtual platform organized by International Society of Waste Management Air and Water (ISWMAW), Centre for Sustainable Development and Resource Efficiency Management, Jadavpur University (CSD&REM, JU) India, CST, Indian Institute of Science, Bangalore.

### **Webinar/ Workshop/ E-Conference Participated:**

1. Participated in the **International webinar on “Game of Basketball and Familiarising its Rules”** organised by the Department of Physical Education in Association with IQAC, Rajapalayam Rajus’ College, Rajapalayam on 12 June, 2020.
2. Participated in the **International Webinar on Research in Experimental Physiology** conducted on 22 May, 2020 organized by Department of Physiology, JIPMER, Puducherry under the auspices of the Association of Physiologists of India (ASSOPI).
3. Participated in the **International E-Conference on “Strategies & Challenges in Higher Education during COVID-19 Lockdown Period in India with reference to the World”** organized by Government Vidarbha Institute of Science & Humanities, Amravati, India on 15 - 17 May, 2020.
4. Participated in **Seven days online Faculty Development Programme (webinar) on “Sports Coaching & Sports Science”**, organized by Swarnim Gujarat Sports University from 23 to 29 June, 2020.
5. Participated in the **Six days National Webinar Series (12 Session) on “Knowledge Generation in Education during COVID-19 Pandemic – Qualitative Research”**, organized by Bombay Teachers’ Training College, HSNC University, Mumbai & Department of Education, University of Mumbai, 1 to 6 June, 2020.
6. Participated in the **Five days National Webinar Series on “Holistic Wellness in Combating the COVID-19 Pandemic”**, organized by the Department of Physical Education, Sri Padmavati Mahila Vishvavidyalayam, Tirupati, 17 to 21 June, 2020.
7. Participated in the **International Forum on Quality and Safety in Healthcare virtual Workshop: “Improving safety post pandemic”**, 30 July, 2020, BMJ, Institute for Healthcare Improvement.
8. Participated in the **International Forum on Quality and Safety in Healthcare virtual Workshop: “Leadership and Culture for Change during COVID-19”**, 6 August, 2020, BMJ, Institute for Healthcare Improvement.

## Annual Report 2020-2021

### OFFICE OF THE DIRECTOR OF YOUTH WELFARE

Phone: 033-2457-2247

Senior Director of Youth Welfare: Dr. Bappa Mullick

E-mail: diryw@jadavpuruniversity.in

Jadavpur University students have been doing extremely well in the co-curricular areas over the years; however, owing to the COVID-19 related closure of the offline classes, there was a low level of students' participations at various levels, including students clubs / societies, intra-murals, extra-murals etc.. Few of the clubs did conduct online activities during the academic year 2020-2021, which have been detailed hereunder.

#### **Details of major participations, achievements and events:-**

##### **Jadavpur University Photographic Club**

###### **Discord Server**

A discord server was opened as a substitute for the club, which would serve as a virtual alternative for the members of Jadavpur University Photographic Club (JUPC). Discord was chosen as the platform since it has the semi-formal interface that is ideal for interactions among the members. Various channels have been created in the server, for topics like post processing, new clicks, etc. where members can freely have conversations about their activities and work. There are currently three mods who ensure the smooth operation of the server.

Assignments were given to the freshers, the results of which were discussed on Discord. Students, attending the call, had productive discussions regarding the assignments. With the voice calls always being an open platform for anyone, members often join into the voice calls and have discussions about new photos they have taken, or about any other topic they deem necessary or interesting.

###### **Advanced Training Session**

The advanced training sessions comprised of classes which educated the continuing freshers about more intricate and detailed techniques and methods of photography and the recapitulation of the older concepts as well. The classes were taken at the end of the session after the end of the year semester exams. The topics included Dark Room and SLR camera technicalities, Studio Photography, Photo Editing and renowned Photographers. These classes were taken by the then 2nd year members of the club.

###### **Convocation Photographs**

The club had provided the Convocation services to the degree receiving students for Annual Convocation Day, 24th December 2019. However the extensive lockdown has rendered the services stagnant. Hence, the club has thus started an email service to send the soft copies via email until the University campus reopens.

A new coding system was used to make the distribution of photographs easier corresponding with the roll number in the convocation list. The club members did a spectacular job in ensuring the smooth running of the Service.

###### **Lightroom workshop**

In the light of the current scenario we had decided to hold a workshop exclusively for teaching photo management and basic photo editing through Adobe Lightroom software. As one of the industry standards in photography, Adobe Lightroom can be used to store photos efficiently and in an organised manner. Two classes were taken in which the software had been explained to junior members of JUPC. The classes had been held in the month of August in online mode. In addition with Lightroom, basic colour theory has also been introduced.

###### **Graphic Designing Session**

In this session, the freshers were introduced mainly to the concept of poster designing and also were exposed to some other well-known categories of graphic design. The participants went through a

## Annual Report 2020-2021

detailed discussion of Colour Coding, various techniques of graphic designing, different aspects of design aesthetics, etc. The session was conducted by the current 3rd-year members of the club. The session elicited a good response from the freshers and came out to be a great learning opportunity for all the club members.

### **Achievements**

We are proud to announce that a winner and participant of many competitions including Getxpo Photography Competition and Photography Exhibition by Srijan at GaganendraShilpaPradarshanshala, Utsav Dam who is a 3rd year member of JUPC, has been offered an Internship on the project "Investigating The Scope And Effect Of Social Distancing On Global Warming" under National Geographic Explorer Corey Jaskolski in Iceland.

### **Jadavpur University Quiz Forum**

Enquiry, the Quiz Forum of Jadavpur University(JUQF), is one of the most active quiz clubs in the city. Under the guidance of the Director of Youth Welfare, and with the assistance of the Office of the Director of Youth Welfare, the club conducts regular sessions, for students both from the university and otherwise. Under regular circumstances, Qriosity, the annual quiz festival, and Inquization, the inter-college freshers' quiz competition, both of which are among the biggest events of their respective kinds in this part of the country, would have been usual fixtures in the Enquiry Calendar. However, due to COVID restrictions, these had to be postponed, and instead, the Enquiry Mcquade, an event that was last held in 2010, was revived, for the first time in an online format, to great success. Given below is a brief event report of all events organised by the club between April 2020 and March 2021.

### **SESSIONS**

Enquiry also organises quiz sessions regularly and is among the very few clubs to regularly conduct quiz sessions in the city. The sessions are informal, uncompetitive in nature, and they do not have prizes. In the April 2020 - March 2021 period, Enquiry has organised 5 sessions, all online, which have had an average attendance of 30 college or university level quizzers from across the city. Some of those sessions were also attended by school students and some were attended by quizzers from outside the city. All sessions were well received by the attendees. The quizmasters at these sessions have been a mix of students from various disciplines. Quizzes have been general themed but also on more specialized topics such as music, movies, literature, entertainment, sports and arts.

Sourjo Sengupta, who presently studies at the Tata Institute of Social Sciences, Pune, is a regular participant and quizmaster to Enquiry sessions, both offline and online.

### **ENQUIRY MCQUADE ONLINE 2020:**

#### **Inception and Preparation:**

Due to Qriosity '20 being untenable during COVID lockdown restrictions, it was decided that some online quizzing event should be held in its place for the members of Enquiry, both past and present. Following the advice given by some seniors, the Mcquade was chosen, an interesting quiz format that was last held in 2010.

Planning for the event started two months previously, with a registration form containing the particulars of the quiz being distributed on 2nd November. The quiz was held over Zoom, with a room created for this purpose.

#### **The Format:**

The Enquiry Mcquade takes place in two rounds -- The Topical First round and the General Final round. For the first round, each participant picks any three topics of their choice. A 10 question set is then prepared on any one of those three topics by a setter, which then has to be answered by said participant.

For the final round, the participants are split into teams of four based on their topical round scores. A regular 30 question general quiz follows, at the end of which the winning teams are decided.



## Annual Report 2020-2021

### Participants and Results:

A total of 38 people, ranging from a '99 graduate to current 2nd years, participated in the event, with the only requirement being that they be Enquiry members. The finals saw 8 teams of 4 members each fight it out in what was a very tight contest.

Tuba Waqar and Titash Banerjee topped the topical round, with 8 points each on their chosen topics. The results for the final round were:

1st: Sreyashi Dastidar, Nrisingha Prasad Ganguly, Bedbyas Datta and Aritra Jana (57) 2nd: Debanjan Bose, Anwesha Roy, Soham De and Anik Dasgupta (55) 3rd: Sarbajit Mitra, Soumyarup Dasgupta, Ananyo Brahma and Agniv Chatterjee (45)

### Topics and Setters:

A wide range of topics were chosen, from "Wars after WW2", to "Star Wars"; from "Bureaucracies", to "Biryani"; and so much more.

20 people from among the participants themselves, volunteered to create a whopping total of 41 sets (38 topical, 3 general) between them. A rough distribution of the sectors represented in the topical round is attached:

All guests were impressed with the organization of the event, and expressed a desire for it to be reinstated as an annual event. Saswata Acharya (2017 batch alumnus, currently studying at IIT BHU) said, "The McQuade organized last year was a great experience. It was kind of an online Qriosity as we got to meet all the seniors and had great fun, even under the Covid restrictions. Kudos to the Enquiry team for making it happen. Eagerly waiting for the next edition." Sreyashi Dastidar (1999 batch alumnus and regular Qriosity quizmaster) had this to say: "This was my first time taking part in McQuade, and I had never quizzed in this format before. It turned out to be very interesting, with an eclectic range of topics chosen by 3 participants, and some excellent fundae presented by the setters. The idea of quizzing to people's strengths is very Mastermind-ish, but here every setter was a quizzer too, so that levelled out the field. Overall, a good idea and well-executed." Following the overwhelmingly positive response, Enquiry is looking to organise a sequel to the event in Oct-Nov '21.

### List of Achievements in 2020-2021:

1. NATIONAL FINALS – ChimeraX 2021, hosted by ISTE MANIT.
2. FIRST – Amphan Relief Quiz, hosted by Bata Quizzing Association.
3. FIRST – Jagmohan Dalmiya Memorial Cricket Quest, Cricket Club of Dhakuria, Kolkata.
4. FIRST – Open General Quiz hosted by Gyananweshan, Barasat.
4. SECOND – Online Open MELA Quiz, Medical College Kolkata
5. SECOND – Open General Quiz hosted by Rotary Club of South Calcutta.
7. THIRD – Quixotic 2020 at Technology Campus, Calcutta University, Kolkata.
8. THIRD – All About Eve at Jadavpur University Women's Conclave 2020, Kolkata.
9. THIRD – MELAS Quiz 2021 at Jadavpur University, Kolkata.

### Jadavpur University Debating Society

#### Events Organized

Social Impact Pitch (A presentation competition on social issues related to child rights in collaboration with Child Rights and You- CRY) (21/11/2020) Intra Model United Nations (Fresher's Model United Nations competition) (14-15/01/2021) Voxpop (Fresher's Debate) (15/02 and 17/02, 2021)

**Jadavpur University Model United Nations 2021 (29-31/10/2021):** JUDS organized the seventh edition of its flagship event, the Jadavpur University Model United Nations 2021. JUMUN 2021 saw almost 200 participants from schools and colleges all across India with five committees dealing with a range of important issues like climate change, women's rights, international peace and security as well as the dynamics of Indian politics. JUMUN saw three days of intense debate and discussion and once again successfully established itself as one of the biggest MUNs in Eastern India.

## Annual Report 2020-2021

### Operations

JUDS has also conducted various public speaking sessions and MUN workshops at various schools and colleges across India to spread the culture of debate and diplomacy among young students.

### Accomplishments

1. Best Delegation at UEM CON 2020
2. Best Delegation at KIIT MUN 2021
3. Best Delegation at Amity Noida MUN 2021

### JADAVPUR UNIVERSITY MUSIC CLUB

Jadavpur University Music Club (Dance Wing) performance throughout the year (2020-21)

- Lahore University ( Pakistan)- Duet Dance , SubhangiSanyal , OindrillaKundu – Best Dance choreography (on-line)
- Calcutta Youth Meet by Script Productions- OindrillaKundu ,SubhangiSanyal – First Position in Dance
- BhawaniporeCollegeFest – Second Position , Eastern Group dance – Debarima, Srideepa, Baichitraa, Devdeep.
- Spring Fest, 2021-First position , solo eastern dance- DeborimaSanyal
- Spring Fest, 2021-First position , Western solo dance - Shreya

### Other Activities/Responsibilities towards promotion and welfare of students

#### Best All-Round Graduates and Post-Graduate awards 2020

The processing and selection for the recipients of the Annual Best All-Round Graduates and Post-Graduate awards 2020 was carried out by the office. Following are the award winners:

#### *Best All-Round Graduate Award for the year2020–*

- Prativa Moyee Gold Centered Silver Medal for the *Best All-Round Female Graduate(including all the Faculties)*: **Taishi Nandi, - B.A., Comparative Literature**
- Alumni Association Gold Centered Silver Medal for the *Best All-Round Graduatecombining all thethree faculties*:**Taishi Nandi, - B.A., Comparative Literature**
- Purna Chandra Laha Silver Medal for the *Best All-Round Graduateincluding all the faculties*: **Taishi Nandi, - B.A., Comparative Literature**
- Prafulla Kanti Banerjee Silver Medal to be given to the *Best All-Round Graduate from the remaining two faculties*: **Prashant Choudhary, B.Mechanical Engineering.**
- Monibala Roy Gold Centered Silver Medal to awarded to the *Best All-Round Girl Graduate* of the Engg.& Tech. Faculty only: **Akansha Rai, B. E.T.C. Engg.,**
- Dipak Kumar Choudhury Memorial Gold Centered Silver Medal for the *Best All-round Graduate combining all the three Faculties*:**Taishi Nandi, - B.A. Comparative Literature**

#### *Best All-Round Post-graduate Award for the Year 2020-*

- B. D. Mukherjee Memorial Gold Centered Silver Medal for *Best All-Round Post Graduate Award* : **Soumik Sengupta, Comparative Literature**
- **“Personal Accident-cum-Medical Insurance for students of Jadavpur University”**  
**No claims were received till date for for the academic session 2020-21.**
- Sr D.Y.W, Dr Bappa Mullick, was invited as a speaker at various virtual seminars, conferences etc, during the session 2020-21, notably amongst them were his lectures / lecture-demonstrations at Dayanand College, Ajmer; Govt College, Nasirabad, Rajasthan; and TATA AIG, Mumbai.
- The RUSA 2.0 Major Research Project of Sr D.Y.W, Dr Bappa Mullick, entitled “A Study of Estimated Body Composition Assessment Methods, and, Development of a Body Fatness Prediction Module” continued in the session 2020-21.
-

## Annual Report 2020-2021

### REPORT OF FINANCE DEPARTMENT : 2020-21

**A. Officers strength:**

Total approved Officers Post in Finance deptt is four, which became full in the year 2020-21, During the Pandemic, the year 2020-21 is mostly affected by the pandemic. During the entire period, since April 2020, we the Finance Team stand for the cause of the communities and tries to restore normalcy by way of uninterrupted service in keeping regular payment of Salary, Pension, Advances and other essential payments, including of all manpower agencies.

**B. Total University Receipts during 2019-20 is as follows:**

**University Annual Receipt for the Year 2020-21 [Both the Capital & Revenue]**

Particulars	Amount (Rs)
University Grants Commission(UGC)	28,40,000
Grant from Central Govt other than UGC	17,10,48,778
State Government	3,12,53,09,045
Grant from State Govt other than salary Grant	55,26,085
Grant From Others (Non Govt)	59,44,507
Foreign Grant	2,01,36,791
Consultancy/ Technical Fees [Gross]	14,69,12,943
Donations	24,00,000
Tuition Fees	4,96,75,019
Other Fees	66,79,568
Interests	2,15,55,930
Income from Rent	31,45,123
Other Income	1,98,24,344
<b>Total</b>	<b>3,58,09,98,133</b>

**C Status of Accounts & Audit:**

During the year, no Annual Accounts could have been finalized, where target date of completion of the Annual Accounts 2018-19 was April 2020 and for the Accounts for the year 2019-20 was 31<sup>st</sup> October 2020. Now, as plan going on both can be completed by next February 2022.

**D. Compliances of rules and formalities:** The introduction many new concepts and directives of Government departments and agencies made our job more troublesome, where cooperation of all concerned is essential for smooth complainers in the scheduled time limit.

## Annual Report 2020-2021

### SC/ST/OBC CELL

Phone: 033-2457-2580/2632

Member Secretary: Dr. Kaniska Sarkar

E-mail: asstregistrar1@jadavpuruniversity.in

Scheduled Caste and Scheduled Tribes have been identified as the two most backward groups of Indian Society. They include all such castes, races or tribes which have been declared as scheduled castes and scheduled tribes by the Constitution of India under the provisions of Article 341 & 342.

Jadavpur University has established a SC/ST Cell in 2007 for the benefit of the University students and employees belonging to SC/ST community. Its function is also to help the students and employees belonging to SC/ST/OBC categories to integrate with the mainstream of the University community and to remove difficulties which they may be experiencing. The Cell was constituted as a measure of strengthening the implementation machinery for planning, evaluation and monitoring of the policies of the Govt. of India as well as Govt. of West Bengal in the field of higher education and also the programmes of the University Grants Commission with the objective to improve the life style of SC/ST/OBC candidates and to lift up them to the general level as compared to the other communities. The cell is monitoring the reservation policies a laid down time to time by the Govt. of West Bengal. It also provides information on fellowship and other activates to the SC/ST/OBC candidates. The SC/ST/OBC Cell has taken up problems of the SC/ST/OBC students and employees with the University authorities and has solved some of them amicably. The Cell has been a user friendly counsellor to all SC/ST/OBC employees and students. The Cell is collecting and furnishing statistical date and other information which the Govt. of India and UGC as well as other agencies like MHRD, SC/ST welfare and National Commission for SC/ST may seek pertaining to the welfare of the SC/STs allied matters. This cell also replies to the Parliamentary questions on reservation from Lok Sabha and Rajya Sabha in different time.

#### **The administrative Committee of SC/ST/OBC Cell-**

Prof. Suranjan Das, Hon'ble Vice Chancellor, JU CHAIRMAN.

Prof. Subarna Kumar Das,	Dept. of Lib. & Inf. Sc., LIASON OFFICER.
Prof. Debasish Lohar,	Dept. of Physics.
Prof. Priti Kumar Roy,	Dept. of Mathematics.
Prof. SanjibMridha,	Dept. of Physical Education.
Prof. Papita Das,	Dept. of Chemical Engg.
Prof. Sudhanbindu Roy,	Dept. of ETCE.
Prof. Prokash Ch. Roy,	Dept. of Mechanical Engg.
Prof. Ratan Mondal,	School of Energy Studies.
Dr. Kaniska Sarkar,	Member Secretary.

Hon'ble Vice Chancellor suggested constituting a committee with at least one external expert to look after and implement the reservation policy especially in student admission and recruitment of staffs of the University. Thus the new committee is constituted with following panel of members:

1. External expert member
2. Prof. Debasish Lohar, Dept. of Physics, Faculty of science
3. Prof. Sanjib Mridha, Dept. of Physical Education, Faculty of Arts
4. Prof. Prokash Ch Roy, Dept. of Mechanical Engg. FET
5. Prof. Ratan Mandal, School of Energy Studies. Faculty of ISLM
6. Dr. Kaniska Sarkar, Asst. Registrar. (Convener)

#### **Responsibilities of this new Committee: -**

- i. The Committee will crucially check all notices and merit lists for the admission of students.
  - ii. The aforementioned Committee will crucially check all notices and lists/panel of successful/unsuccessful candidates for the recruitment of university employees.
- III. SC/ST/OBC Cell may refer any related tasks which comes under the purview of the Cell to the aforesaid Committee where expert opinions are required.

## Annual Report 2020-2021

### FACULTY PROFILE

(As on 31.03.2020)

#### FACULTY OF ARTS & ISLM

Department	Name	Present Designation
1 Bengali	Dr. Sekhar Kumar Samaddar	Professor
2 Bengali	Dr. Sampa Chaudhuri	Professor
3 Bengali	Dr. Ananya Baruya	Professor
4 Bengali	Smt. Sutapa Sengupta	Associate Professor
5 Bengali	Sri Saswata Bhattacharya	Assistant Professor
6 Bengali	Abdul Kafi	Assistant Professor
7 Bengali	Dr. Barendu Mandal	Professor
8 Bengali	Dr. Rajayeswar Sinha	Professor
9 Bengali	Dr. Joydeep Ghosh	Associate Professor
10 Bengali	Dr. Payel Basu	Assistant Professor
11 Bengali	Mr. Mughda Majamder	Assistant Professor
12 Bengali	Dr. Broti Gayen	Assistant Professor
13 Bengali	Dr. Selim Box Mondal	Associate Professor
14 Bengali	Dr. Sumit Kumar Barua	Associate Professor
15 Comparative Literature	Dr. Ipshita Chanda	Professor
16 Comparative Literature	Dr. Suchorita Chattopadhyay	Professor
17 Comparative Literature	Dr. Kavita Panjabi	Professor
18 Comparative Literature	Dr. Kunal Chattopadhyay	Professor
19 Comparative Literature	Dr. Samantak Das	Professor
20 Comparative Literature	Dr. Smt. Sucheta Bhattacharya	Professor
21 Comparative Literature	Sri Aveek Majumder	Assistant Professor
22 Comparative Literature	Dr. Sujit Kr. Mandal	Associate Professor
23 Comparative Literature	Dr. Sayantan Dasgupta	Associate Professor
24 Comparative Literature	Dr. Debashree Datta Ray	Associate Professor
25 Comparative Literature	Dr. Epsita Halder	Associate Professor
26 Comparative Literature	Dr. Parthasarathi Bhaumik	Associate Professor
27 Comparative Literature	Dr. Sumit Kumar Barua	Assistant Professor
28 Economics	Dr. Ajitava Raychaudhuri	Professor
29 Economics	Dr. Joyashree Roy	Professor
30 Economics	Dr. Rajat Acharyya	Professor
31 Economics	Dr. Ambar Nath Ghosh	Professor
32 Economics	Dr. Siddhartha Mitra	Professor
33 Economics	Dr. Malabika Roy	Professor
34 Economics	Dr. Arpita Ghose (nee Dhar)	Professor
35 Economics	Dr. Jugaratan Barman	Associate Professor
36 Economics	Dr. Saikat Sinha Roy	Professor
37 Economics	Dr. Vivekananda Mukherjee	Professor
38 Economics	Dr. Sushil Kr. Haldar	Professor
39 Economics	Dr. Amit Kundu	Professor
40 Economics	Dr. Tanmoyee Banerjee Chatterjee	Professor

## Annual Report 2020-2021

41	Economics	Dr. Swapnendu Bandyopadhyay	Professor
42	Economics	Smt. Soma Mondal	Assistant Professor
43	Economics	Dr. Sanmitra Ghosh	Associate Professor
44	Economics	Dr. Vikas Dixit	Assistant Professor
45	Economics	Dr. Bidisha Chakraborty	Assistant Professor
46	Economics	Dr. Poulomi Roy	Associate Professor
47	Economics	Dr. Simontini Das	Assistant Professor
48	Economics	Dr. Rilina Basu (Banerjee)	Assistant Professor
49	Economics	Dr. Tamal Krishna Kayal	Assistant Professor
50	English	Dr. Nilanjana Gupta	Professor
51	English	Dr. Prodosh Bhattacharya	Professor
52	English	Dr. Santanu Biswas	Professor
53	English	Dr. Chandreyee Niyogi	Professor
54	English	Dr. Abhijit Gupta	Professor
55	English	Dr. Paromita Chakravarti	Professor
56	English	Dr. Nandini Saha	Professor
57	English	Dr. Rimi Barnali Chatterjee	Professor
58	English	Dr. Nilanjana Deb	Associate Professor
59	English	Dr. Saswati Halder	Associate Professor
60	English	Dr. Monojit Mondal	Professor
61	English	Dr. Rafat Ali	Associate Professor
62	English	Dr. Sonia Sahoo	Professor
63	English	Dr. Smt. Sutanuka Ghosh	Assistant Professor
64	English	Dr. Ramit Samaddar	Assistant Professor
65	English	Dr. Abhishek Sarkar	Assistant Professor
66	English	Dr. Kaustav Bakshi	Associate Professor
67	English	Sri Ishan Chakraborty	Assistant Professor
68	English	Dr. Doyeeta Majumder	Assistant Professor
69	Education	Dr. Bishnupada Nanda	Professor
70	Education	Dr. Muktipada Sinha	Associate Professor
71	Education	Sri Debashis Mirdha	Assistant Professor
72	Education	Dr. Lalit Lalitav Mohakud	Assistant Professor
73	Education	Dr. Prokash Biswas	Associate Professor
74	Education	Dr. Samir Chattopadhyay	Assistant Professor
75	Education	Dr. Manikanta Paria	Assistant Professor
76	Education	Ms. Suparna Mondal	Assistant Professor
77	Education	Dr. Tausif Biswas	Assistant Professor
78	Education	Dr. Dipty Subba	Assistant Professor
79	Film Studies	Dr. Moinak Biswas	Professor
80	Film Studies	Dr. Abhijit Roy	Professor
81	Film Studies	Dr. Madhuja Mukherjee	Associate Professor
82	Film Studies	Sri Anindya Sengupta	Assistant Professor
83	Film Studies	Dr. Shradhanjali Tamang	Assistant Professor
84	Film Studies	Sri Arijeet Mandal	Assistant Professor
85	History	Dr. Ranjan Chakrabarti	Professor
86	History	Dr. Mahua Sarkar	Professor
87	History	Dr. Anuradha Roy	Professor
88	History	Dr. Nupur Dasgupta	Professor
89	History	Dr. Kaushik Roy	Professor
90	History	Dr. Sudeshna Banerjee	Associate Professor
91	History	Dr. Subhashis Biswas	Professor

## Annual Report 2020-2021

92	History	Dr. Rup Kumar Barman	Professor
93	History	Dr. Suchetana Chattopadhyay	Professor
94	History	Dr. Maroona Murmu	Professor
95	History	Sri Samir Das	Assistant Professor
96	History	Dr. Tilottoma Mukherjee	Associate Professor
97	History	Dr. Chandrani Banerjee Mukherjee	Associate Professor
98	History	Dr. Samarпита Mitra	Assistant Professor
99	History	Dr. Debajit Dutta	Assistant Professor
100	History	Dr. Utsa Ray	Assistant Professor
101	International Relations	Dr. Om Prakash Mishra	Professor
102	International Relations	Dr. Sumita Sen	Professor
103	International Relations	Dr. Partha Pratim Basu	Professor
104	International Relations	Dr. Anindya Jyoti Majumdar	Professor
105	International Relations	Dr. Shibashis Chatterjee	Professor
106	International Relations	Mrs. Rochona Das Poddar	Associate Professor
107	International Relations	Dr. Kanak Chandra Sarkar	Professor
108	International Relations	Dr. Kakoli Sengupta	Associate Professor
109	International Relations	Dr. Imankalyan Lahiri	Professor
110	International Relations	Dr. Herken Neadan Toppo	Associate Professor
111	International Relations	Dr. Bijaya Kr. Das	Assistant Professor
112	International Relations	Dr. Kaushik Sen	Assistant Professor
113	International Relations	Dr. Bhagaban Behera	Assistant Professor
114	International Relations	Sri Arup Bhattacharyya	Assistant Professor
115	International Relations	Sri Subhajit Naskar	Assistant Professor
116	International Relations	Smt. Urbi Das	Assistant Professor
117	International Relations	Dr. Sukanya Ray	Assistant Professor
118	International Relations	Sk. Abdul Matin	Assistant Professor
119	International Relations	Dr. Kamaran M.K Mondal	Associate Professor
120	International Relations	Dr. Sreya Maitra	Assistant Professor
121	International Relations	Dr. Ishani Naskar	Professor
122	Library and Information Science	Dr. Sunil Kumar Chatterjee	Professor
123	Library and Information Science	Dr. Udayan Bhattacharjya	Professor
124	Library and Information Science	Dr. Goutam Maity	Professor
125	Library and Information Science	Dr. Subarna Kr. Das	Professor
126	Library and Information Science	Dr. Tarun Kumar Mondal	Assistant Professor
127	School of Languages	Dr. Atanu Saha	Assistant Professor
128	School of Languages	Dr. Samir Karmakar	Assistant Professor
129	School of Languages	Dr. Indranil Dutta	Professor
130	Philosophy	Dr. Rupa Bandyopadhyay	Professor
131	Philosophy	Dr. Madhumita Chattopadhyay	Professor
132	Philosophy	Dr. Sadhan Chakraborti	Professor
133	Philosophy	Dr. Soumitra Basu	Professor
134	Philosophy	Dr. Gangadhar Kar	Professor
135	Philosophy	Dr. Atashee Chatterjee (Sinha)	Professor
136	Philosophy	Dr. Lopamudra Choudhury	Professor
137	Philosophy	Dr. Proyash Sarkar	Professor
138	Philosophy	Dr. Sashi Nungla	Professor
139	Philosophy	Dr. Aparajita Mukhopadhyay	Professor
140	Philosophy	Dr. Jhuma Chakraborty	Professor
141	Philosophy	Dr. Dipayan Pattanayak	Professor
142	Philosophy	Dr. Maushumi Guha	Professor

## Annual Report 2020-2021

143	Philosophy	Shri Arun Mahata	Associate Professor
144	Philosophy	Dr. Smt. Maitreyee Datta	Professor
145	Philosophy	Dr. Preetam Ghoshal	Professor
146	Philosophy	Mrs. Rubai Saha	Assistant Professor
147	Philosophy	Dr. Gopi Nath Mondal	Assistant Professor
148	Philosophy	Dr. Samar Kumar Mondal	Professor
149	Philosophy	Smt. Gargi Goswami	Associate Professor
150	Philosophy	Dr. Madhucchanda Sen	Professor
151	Philosophy	Dr. Tamoghna Sarkar	Assistant Professor
152	Physical Education	Dr. Sudip Sundar Das	Professor
153	Physical Education	Dr. Ashoke Kumar Biswas	Professor
154	Physical Education	Dr. Gopal Chandra Saha	Professor
155	Physical Education	Dr. Sanjib Mridha	Professor
156	Physical Education	Dr. Asish Paul	Associate Professor
157	Physical Education	Dr. Atanu Ghosh	Assistant Professor
158	Physical Education	Dr. Papan Mondal	Assistant Professor
159	Physical Education	Dr. Sridip Chatterjee	Assistant Professor
160	Sanskrit	Dr. Debarchana Sarkar	Professor
161	Sanskrit	Dr. Tapan Sankar Bhattacharya	Professor
162	Sanskrit	Dr. Ashok Kumar Mahata	Associate Professor
163	Sanskrit	Dr. Shiuli (Ghosh) Basu	Associate Professor
164	Sanskrit	Dr. Kakali Ghosh	Professor
165	Sanskrit	Dr. Debdas Mandal	Assistant Professor
166	Sanskrit	Dr. Chinmay Mandal	Assistant Professor
167	Sanskrit	Mr. Bikash Sardar	Assistant Professor
168	Sociology	Dr. Dalia Chakraborty	Professor
169	Sociology	Dr. Amites Mukhopadhyay	Professor
170	Sociology	Smt. Nutan Marian Tigga	Assistant Professor
171	Sociology	Dr. Piyali Sur	Professor
172	Sociology	Smt. Nabanita Das	Assistant Professor
173	School of Womens Studies	Dr. Aishika Chakraborty	Professor
174	School of Womens Studies	Dr. Nandita (Banerjee) Dhawan	Assistant Professor
175	School of Womens Studies	Dr. Samita Sen	Professor
176	School of Cognitive Science	Dr. Amrita Basu	Assistant Professor



## Annual Report 2020-2021

### FACULTY OF ENGINEERING & TECHNOLOGY & ISLM

Department	Name	Present Designation
1. Adult, Continuing Education	Dr. Tandra Mitra	Professor
2. and Extension		
3. Adult, Continuing Education	Dr. Partha Sarathi Chakraborty	Professor
4. and Extension		
5. Adult, Continuing Education	Sri Santwan Chattopadhyay	Associate Professor
and Extension		
6. Architecture Engineering	Dr. Shubhrajit Das	Professor
7. Architecture	Dr. Jayita Guha Niyogi	Professor
8. Architecture	Dr. Tapas Kumar Bhattacharyya	Professor
9. Architecture	Dr. Shivashish Bose	Professor
10. Architecture	Dr. Madhumita Roy	Professor
11. Architecture	Dr. Sanjib Nag	Professor
12. Architecture	Dr. Smt. Suchandra Bardhan	Professor
13. Architecture	Dr. Debashish Das	Associate Professor
14. Architecture	Ms Sanghamitra Sarkar	Assistant Professor
15. Architecture	Dr. Mainak Ghosh	Associate Professor
16. Architecture	Ms. Dechen Donka Bhutia	Assistant Professor
17. Architecture	Mr. Tanmoy Datta	Assistant Professor
18. Chemical Engineering	Dr. Ranjana Chowdhury	Professor
19. Chemical Engineering	Dr. Chiranjib Bhattacharjee	Professor
20. Chemical Engineering	Dr. Kajari Kar Gupta	Professor
21. Chemical Engineering	Dr. Avijit Bhowal	Professor
22. Chemical Engineering	Dr. Prasanta Kumar Banerjee	Associate Professor
23. Chemical Engineering	Dr. Debashis Roy	Professor
24. Chemical Engineering	Dr. Ujjaini Sarkar	Professor
25. Chemical Engineering	Dr. Chanchal Mondal	Associate Professor
26. Chemical Engineering	Dr. Rajat Chakraborty	Professor
27. Chemical Engineering	Dr. Papita Das (Saha)	Professor
28. Chemical Engineering	Dr. Mehabub Rahaman	Assistant Professor
29. Chemical Engineering	Dr. Ratna Dutta	Assistant Professor
30. Chemical Engineering	Dr. Parama Ghoshal	Assistant Professor
31. Chemical Engineering	Dr. Shyamal Roy	Assistant Professor
32. Chemical Engineering	Dr. Sudeshna Saha	Assistant Professor
33. Chemical Engineering	Ms. Sujata Sardar	Assistant Professor
34. Chemical Engineering	Dr. Raj kumar Das	Assistant Professor
35. Chemical Engineering	Dr. Ranjana Das	Associate Professor
36. Civil Engineering	Dr. Somnath Ghosh	Professor
37. Civil Engineering	Dr. Somnath Mukherjee	Professor
38. Civil Engineering	Dr Shibnath Chakraborty	Professor
39. Civil Engineering	Dr. Arup Guha Neogi	Professor
40. Civil Engineering	Dr. Ramendu Bikash Sahu	Professor
41. Civil Engineering	Dr. Dipankar Chakraborty	Professor
42. Civil Engineering	Dr. Sibapriya Mukherjee	Professor
43. Civil Engineering	Dr. Saroj Mondal	Professor

## Annual Report 2020-2021

44. Civil Engineering	Dr. Partha Bhattacharya	Professor
45. Civil Engineering	Dr. Anupam Deb Sarkar	Associate Professor
46. Civil Engineering	Dr. Amit Dutta	Professor
47. Civil Engineering	Dr. Gupinath Bhandari	Associate Professor
48. Civil Engineering	Shri. Pritam Aitch	Associate Professor
49. Civil Engineering	Dr. Sumit Kr. Biswas	Associate Professor
50. Civil Engineering	Dr. Subhasish Roy Choudhury	Assistant Professor
51. Civil Engineering	Dr. Tumpa Hazra	Associate Professor
52. Civil Engineering	Dr. Sreyashi Das (nee Pal)	Associate Professor
53. Civil Engineering	Dr. Kalyan Kr. Mondal	Associate Professor
54. Civil Engineering	Dr. Amit Shiuly	Associate Professor
55. Civil Engineering	Sri Santosh Kr. Das	Assistant Professor
56. Civil Engineering	Sri Narayan Roy	Assistant Professor
57. Civil Engineering	Sri Abhisek Roy	Assistant Professor
58. Civil Engineering	Sri Ankush Majumder	Assistant Professor
59. Civil Engineering	Sri Indarjit Barua	Assistant Professor
60. Civil Engineering	Obaidur Rahaman	Assistant Professor
61. Civil Engineering	Dr. Arghadeep Biswas	Assistant Professor
62. Computer Science and Engineering	Dr. Mita Nasipuri	Professor
63. Computer Science and Engineering	Dr. Atal Chaudhuri	Professor
64. Computer Science and Engineering	Dr. Mahantapas Kundu	Professor
65. Computer Science and Engineering	Dr. Anupam Sinha	Professor
66. Computer Science and Engineering	Dr. Nandini Mukhopadhyay	Professor
67. Computer Science and Engineering	Dr. Chandan Majumdar	Professor
68. Computer Science and Engineering	Dr. Sivaji Bandyopadhyay	Professor
69. Computer Science and Engineering	Dr. Ujjwal Maulik	Professor
70. Computer Science and Engineering	Dr. Chitrita Chaudhuri	Associate Professor
71. Computer Science and Engineering	Dr. Nirmalya Chowdhury	Professor
72. Computer Science and Engineering	Dr. Sarmistha Neogy	Professor
73. Computer Science and Engineering	Dr. Susmita Ghosh (Nee De)	Professor
74. Computer Science and Engineering	Dr. Sanjoy Kumar Saha	Professor
75. Computer Science and Engineering	Dr. Jamuna Kanta Singh	Professor
76. Computer Science and Engineering	Dr. Kamal Sarkar	Professor
77. Computer Science and Engineering	Dr. Debotosh Bhattacharjee	Professor
78. Computer Science and Engineering	Dr. Diganta Saha	Professor
79. Computer Science and Engineering	Dr. Mridul Sankar Barik	Assistant Professor
80. Computer Science and Engineering	Dr. Subhadip Basu	Professor
81. Computer Science and Engineering	Dr. Sarbani Roy	Professor
82. Computer Science and Engineering	Dr. Ram Sarkar	Professor
83. Computer Science and Engineering	Dr. Chandreyee Chowdhury	Associate Professor
84. Computer Science and Engineering	Sri Nibaran Das	Professor
85. Computer Science and Engineering	Dr. Chintan Kumar Mandal	Assistant Professor
86. Computer Science and Engineering	Dr. Sudip Kumar Naskar	Associate Professor
87. Computer Science and Engineering	Dr. Dipankar Das	Assistant Professor
88. Computer Science and Engineering	Smt. Anasua Sarkar	Assistant Professor
89. Construction Engineering	Dr. Subhajit Saraswati	Professor

## Annual Report 2020-2021

90. Construction Engineering	Dr. Partha Pratim Biswas	Professor
91. Construction Engineering	Dr. Debasish Bandyopadhyay	Professor
92. Construction Engineering	Dr. Gokul Ch. Mondal	Professor
93. Construction Engineering	Dr. Kaushik Bandyopadhyay	Professor
94. Construction Engineering	Dr. Partha Ghosh	Professor
95. Construction Engineering	Dr. Sayan Nandi	Assistant Professor
96. Construction Engineering	Dr. Manoj Kumar Sahis	Assistant Professor
97. Construction Engineering	Dr. Dipsh Majumder	Assistant Professor
98. Electrical Engineering	Dr. Subrata Paul	Professor
99. Electrical Engineering	Dr. Swapan Kumar Goswami	Professor
100. Electrical Engineering	Dr. Sugata Munshi	Professor
101. Electrical Engineering	Dr. Kesab Bhattacharya	Professor
102. Electrical Engineering	Dr. Sivaji Chakravorti	Professor
103. Electrical Engineering	Dr.(Mrs.) Suparna Kar Choudhury	Professor
104. Electrical Engineering	Dr. Mrs. Smita Sadhu (Ghosh)	Professor
105. Electrical Engineering	Dr. Abhijit Mukherjee	Professor
106. Electrical Engineering	Dr. (Mrs.) Saswati Mazumdar	Professor
107. Electrical Engineering	Dr. (Mrs.) Mita Dutta	Professor
108. Electrical Engineering	Sri. Palash Kumar Kundu	Professor
109. Electrical Engineering	Dr. Madhubanti Maitra	Professor
110. Electrical Engineering	Dr. Arabinda Das	Professor
111. Electrical Engineering	Dr. Ranjit Kr. Barai	Professor
112. Electrical Engineering	Dr. Amitava Chatterjee	Professor
113. Electrical Engineering	Sri Madhab Roy	Associate Professor
114. Electrical Engineering	Dr. Biswanath Roy	Professor
115. Electrical Engineering	Dr. Nikhil Mondal	Associate Professor
116. Electrical Engineering	Dr. Debashis Chatterjee	Professor
117. Electrical Engineering	Dr. Biswajit Bhattacharyya	Associate Professor
118. Electrical Engineering	Dr. Gautam Sarkar	Professor
119. Electrical Engineering	Dr. Smt. Sunita Halder (nee Dey)	Professor
120. Electrical Engineering	Dr. Sovan Dalai	Professor
121. Electrical Engineering	Dr. Biswendu Chatterjee	Professor
122. Electrical Engineering	Dr. Arindam Kumar Sil	Associate Professor
123. Electrical Engineering	Dr. Susanta Ray	Associate Professor
124. Electrical Engineering	Dr. Debangsu Dey	Associate Professor
125. Electrical Engineering	Dr. Suddhasatwa Chakraborty	Assistant Professor
126. Electrical Engineering	Dr. Ayan Kumar Tudu	Assistant Professor
127. Electrical Engineering	Ms. Madhumita Mandal	Assistant Professor
128. Electrical Engineering	Dr. (Ms.) Sudipta Debnath	Professor
129. Electrical Engineering	Sri Dipten Maity	Assistant Professor
130. Electrical Engineering	Dr. Sayantan Chakraborty	Assistant Professor
131. Electrical Engineering	Sri Mihir Hembram	Assistant Professor
132. Electrical Engineering	Sri Arpan Kumar Pradhan	Assistant Professor
133. Electronics and Telecommunication Engg.	Dr. Subir Kumar Sarkar	Professor
134. Electronics and Telecommunication Engg.	Dr. Iti Saha Misra	Professor
135. Electronics and Telecommunication Engg.	Dr. Bhaskar Gupta	Professor
136. Electronics and Telecommunication Engg.	Dr. Amit Konar	Professor
137. Electronics and Telecommunication Engg.	Dr. Mrinal Kanti Naskar	Professor
138. Electronics and Telecommunication Engg.	Dr. Chayanika Bose (Majumder)	Professor
139. Electronics and Telecommunication Engg.	Dr. Palanikndavar Venkateswaran	Professor
140. Electronics and Telecommunication Engg.	Dr. Sheli Murmu (Sinha Chaudhuri)	Professor
141. Electronics and Telecommunication Engg.	Dr. Ananda Shankar Chowdhury	Professor
142. Electronics and Telecommunication Engg.	Dr. Manotosh Biswas	Professor

## Annual Report 2020-2021

143. Electronics and Telecommunication Engg.	Dr. Sudhabindu Ray	Professor
144. Electronics and Telecommunication Engg.	Dr. Sudipta Chattopadhyay	Professor
145. Electronics and Telecommunication Engg.	Dr. Sayan Chatterjee	Associate Professor
146. Electronics and Telecommunication Engg.	Dr. Chandrima Mondal	Assistant Professor
147. Electronics and Telecommunication Engg.	Sri Nirmoy Modak	Assistant Professor
148. Electronics and Telecommunication Engg.	Smt. Pratyusha Rakshit	Assistant Professor
149. Electronics and Telecommunication Engg.	Dr. Jaydeb Bhaumik	Associate Professor
150. Food Technology and Biochemical Engg.	Dr. (Ms.) Runu Chakraborty	Professor
151. Food Technology and Biochemical Engg.	Dr. Uma Ghosh	Professor
152. Food Technology and Biochemical Engg.	Dr. Paramita Bhattacharjee	Professor
153. Food Technology and Biochemical Engg.	Dr. Dipankar Halder	Associate Professor
154. Food Technology and Biochemical Engg.	Dr. Prasanta Kumar Biswas	Professor
155. Food Technology and Biochemical Engg.	Dr. Debabrata Bera	Associate Professor
156. Food Technology and Biochemical Engg.	Dr. Sunita Adhikary (nee Pramanik)	Associate Professor
157. Information Technology	Dr. Samiran Chattopadhyay	Professor
158. Information Technology	Dr. Parama Bhaumik	Associate Professor
159. Information Technology	Dr. Bibhas Ch. Dhara	Professor
160. Information Technology	Dr. Uttam Kumar Roy	Professor
161. Information Technology	Dr. Bhaskar Sardar	Professor
162. Information Technology	Dr. Kartick Chandra Mondal	Assistant Professor
163. Information Technology	Tohida Rehman	Assistant Professor
164. Instrumentation and Electronics Engg.	Dr. Sankar Narayan Patra	Associate Professor
165. Instrumentation and Electronics Engg.	Dr. Bivas Dam	Professor
166. Instrumentation and Electronics Engg.	Dr. Subhankar Bandyopadhyay	Professor
167. Instrumentation and Electronics Engg.	Dr. Ardhendu Ghosal	Professor
168. Instrumentation and Electronics Engg.	Dr. Rajib Bandyopadhyay	Professor
169. Instrumentation and Electronics Engg.	Dr. Kalyan Majumdar	Associate Professor
170. Instrumentation and Electronics Engg.	Dr. Kumardeb Banerjee	Professor
171. Instrumentation and Electronics Engg.	Dr. Rajanikanta Mudi	Professor
172. Instrumentation and Electronics Engg.	Dr. Ratna Ghosh	Professor
173. Instrumentation and Electronics Engg.	Dr. Bipan Tudu	Professor
174. Instrumentation and Electronics Engg.	Dr. (Ms.) Runu Banerjee Roy	Professor
175. Instrumentation and Electronics Engg.	Dr. Prolay Sharma	Assistant Professor
176. Instrumentation and Electronics Engg.	Mr. Abhijit Chandra	Assistant Professor
177. Instrumentation and Electronics Engg.	Ms. Shyamali Mitra	Assistant Professor
178. Mechanical Engineering	Dr. Goutam Majumder	Professor
179. Mechanical Engineering	Dr. Goutam Pohit	Professor
180. Mechanical Engineering	Dr. Sumanta Neogi	Professor
181. Mechanical Engineering	Dr. Dipankar Sanyal	Professor
182. Mechanical Engineering	Dr. Swarnendu Sen	Professor
183. Mechanical Engineering	Dr. Sudipta De	Professor
184. Mechanical Engineering	Dr. Achintya Mukhopadhyay	Professor
185. Mechanical Engineering	Dr. Prasanta Sahoo	Professor
186. Mechanical Engineering	Dr. Sadhan Kr. Ghosh	Professor
187. Mechanical Engineering	Dr. Goutam Sutradhar	Professor
188. Mechanical Engineering	Dr. Buddhadev Oraon	Professor
189. Mechanical Engineering	Dr. Prabir Kumar De	Professor
190. Mechanical Engineering	Dr. Dipak Laha	Professor
191. Mechanical Engineering	Sri Ranajit Kumar Chakraborti	Associate Professor
192. Mechanical Engineering	Dr. Abhijit Mukhopadhyay	Associate Professor
193. Mechanical Engineering	Dr. Amit Karmakar	Associate Professor
194. Mechanical Engineering	Dr. Snehmoy Majumder	Professor
195. Mechanical Engineering	Dr. Rajat Shubra Sen	Professor

## Annual Report 2020-2021

196. Mechanical Engineering	Dr. Sanjib Acharyya	Professor
197. Mechanical Engineering	Dr. Debasish Roy	Professor
198. Mechanical Engineering	Dr. Arunava Chanda	Professor
199. Mechanical Engineering	Dr. Somnath Bhattacharjee	Associate Professor
200. Mechanical Engineering	Dr. Titas Nandi	Professor
201. Mechanical Engineering	Dr. Balaram Kundu	Professor
202. Mechanical Engineering	Dr. Arghya Nandi	Professor
203. Mechanical Engineering	Dr. Koushik Ghosh	Professor
204. Mechanical Engineering	Sri Goutam Nandi	Associate Professor
205. Mechanical Engineering	Dr. Tarun Kanti Naskar	Professor
206. Mechanical Engineering	Dr. Kashinath Saha	Associate Professor
207. Mechanical Engineering	Dr. Snehangshu Mandal	Associate Professor
208. Mechanical Engineering	Dr. Himadri Chattopadhyay	Professor
209. Mechanical Engineering	Dr. Dulal Krishna Mandal	Professor
210. Mechanical Engineering	Dr. Saikat Mookherjee	Professor
211. Mechanical Engineering	Dr. Samar Chandra Mandal	Professor
212. Mechanical Engineering	Dr. Debabrata Nag	Professor
213. Mechanical Engineering	Dr. Abhijit Chanda	Professor
214. Mechanical Engineering	Dr. Subhas Chandra Panja	Professor
215. Mechanical Engineering	Sri Susenjit Sarkar	Professor
216. Mechanical Engineering	Dr. Nirmal Kumar Manna	Professor
217. Mechanical Engineering	Dr. Rana Saha	Professor
218. Mechanical Engineering	Dr. Nipu Modak	Professor
219. Mechanical Engineering	Dr. Debabrata Das	Professor
220. Mechanical Engineering	Dr. Dipten Misra	Assistant Professor
221. Mechanical Engineering	Dr Tapan Kr. Barman	Professor
222. Mechanical Engineering	Dr. Sudip Simlandi	Associate Professor
223. Mechanical Engineering	Dr. Prokash Chandra Roy	Professor
224. Mechanical Engineering	Mr. Pranibesh Mandal	Assistant Professor
225. Mechanical Engineering	Sri Siddhartha Patra	Assistant Professor
226. Mechanical Engineering	Dr. Suman Kalyan Das	Assistant Professor
227. Mechanical Engineering	Dr. Anirban Mitra	Assistant Professor
228. Mechanical Engineering	Dr. Anindya Sundar Das	Assistant Professor
229. Mechanical Engineering	Sri Sourav Sarkar	Assistant Professor
230. Mechanical Engineering	Dr. Shouvik Ghosh	Assistant Professor
231. Mechanical Engineering	Sri Hareram Lohar	Assistant Professor
232. Mechanical Engineering	Sri Tanmoy Bandyopadhyay	Assistant Professor
233. Mechanical Engineering	Sri Nabendu Ghosh	Assistant Professor
234. Mechanical Engineering	Sri Suman Nihar	Assistant Professor
235. Mechanical Engineering	Sri. Priyankar Datta	Assistant Professor
236. Mechanical Engineering	Dr. Sandip Sarkar	Associate Professor
237. Mechanical Engineering	Sri Abhishek Mandal	Assistant Professor
238. Metallurgical and Material Engineering	Dr. Subir Pal	Professor
239. Metallurgical and Material Engineering	Dr. Pravash Chandra Chakraborti	Professor
240. Metallurgical and Material Engineering	Dr. Akshay K. Pramanick	Professor
241. Metallurgical and Material Engineering	Dr. Rajib Dey	Professor

## Annual Report 2020-2021

242. Metallurgical and Material Engineering	Dr. Sathi Banerjee (Nee Mallick)	Assistant Professor
243. Metallurgical and Material Engineering	Dr. Amrita Kundu	Associate Professor
244. Metallurgical and Material Engineering	Smt. Shilabati Hembram	Assistant Professor
245. Metallurgical and Material Engineering	MD. Basiruddin Sk	Assistant Professor
246. Pharmaceutical Technology	Dr. Tanmoy Bera	Professor
247. Pharmaceutical Technology	Dr. Tarun Jha	Professor
248. Pharmaceutical Technology	Dr. Lakshmi Kanta Ghosh	Professor
249. Pharmaceutical Technology	Dr. Tapan Kumar Maity	Professor
250. Pharmaceutical Technology	Dr. Mrs. Jasmina Khanam	Professor
251. Pharmaceutical Technology	Dr. Amalesh Samanta	Professor
252. Pharmaceutical Technology	Dr. Pulok Kr. Mukherjee	Professor
253. Pharmaceutical Technology	Dr. Kunal Roy	Professor
254. Pharmaceutical Technology	Dr. Sanmoy Karmakar	Professor
255. Pharmaceutical Technology	Dr. Biswajit Mukherjee	Professor
256. Pharmaceutical Technology	Dr. Subhash Chandra Mondal	Professor
257. Pharmaceutical Technology	Dr. Pallab Kanti Halder	Professor
258. Pharmaceutical Technology	Dr. Saikat Dewanjee	Associate Professor
259. Pharmaceutical Technology	Dr. Ketousetuo Kuotsu	Associate Professor
260. Pharmaceutical Technology	Sri. Kaushik Mukharjee	Assistant Professor
261. Pharmaceutical Technology	Dr. Probir Kumar Ojha	Associate Professor
262. Pharmaceutical Technology	Dr. Tapan Kumar Giri	Associate Professor
263. Pharmaceutical Technology	Dr. Nilanjan Adhikari	Assistant Professor
264. Pharmaceutical Technology	Dr. Manas Bhowmik	Assistant Professor
265. Pharmaceutical Technology	Dr. Kajal Ghosal	Assistant Professor
266. Pharmaceutical Technology	Dr. Shovanlal Gayen	Assistant Professor
267. Pharmaceutical Technology	Dr. Nilanjan Ghosh	Assistant Professor
268. Pharmaceutical Technology	Dr. Sanchita Mondal	Assistant Professor
269. Pharmaceutical Technology	Dr. Ranu Biswas	Assistant Professor
270. Pharmaceutical Technology	Dr. Emdad Hossin	Associate Professor
271. Power Engineering	Dr. Bireswar Majumdar	Professor
272. Power Engineering	Dr. Niladri Chakraborty	Professor
273. Power Engineering	Dr. Amitava Datta	Professor
274. Power Engineering	Dr. Amitava Gupta	Professor
275. Power Engineering	Dr. Apurba Kumar Santra	Professor
276. Power Engineering	Dr. Mousumi Basu	Professor
277. Power Engineering	Dr. Kamal Krishna Mondal	Professor
278. Power Engineering	Dr. Ranjan Ganguly	Professor
279. Power Engineering	Dr. Gargi Konar	Assistant Professor
280. Power Engineering	Dr. Debashis Palit	Assistant Professor
281. Power Engineering	Sri Bhimsen Tudu	Assistant Professor
282. Power Engineering	Sri Subrata Mondal	Assistant Professor
283. Power Engineering	Dr. Nirmalendu Biswas	Assistant Professor
284. Power Engineering	Dr. Prithwiraj Purkait	Professor
285. Printing Engineering	Dr. Arun Kiran Pal	Professor
286. Printing Engineering	Dr. Swati Bandyopadhyay	Associate Professor
287. Printing Engineering	Dr. Kanai Ch. Paul	Professor
288. Printing Engineering	Dr. Pradip Kundu	Assistant Professor
289. Printing Engineering	Sri Soumen Basak	Associate Professor
290. Printing Engineering	Dr. Arpitam Chatterjee	Assistant Professor
291. Printing Engineering	Smt. Shilpi Naskar	Assistant Professor
292. Printing Engineering	Ms. Mahasweta Mandal	Assistant Professor
293. Production Engineering	Dr. Bijan Sarkar	Professor

## Annual Report 2020-2021

294. Production Engineering	Dr. Bijoy Bhattacharyya	Professor
295. Production Engineering	Dr. Shankar Chakraborty	Professor
296. Production Engineering	Dr. Biswanath Doloi	Professor
297. Production Engineering	Dr. Souren Mitra	Professor
298. Production Engineering	Dr. Debmalya Banerjee	Professor
299. Production Engineering	Dr. Arunansu Sekhar Kuar	Professor
300. Production Engineering	Sri Subir Kr. Debnath	Associate Professor
301. Production Engineering	Dr. Ajoy Kumar Dutta	Professor
302. Production Engineering	Dr. Soumya Sarkar	Professor
303. Production Engineering	Dr. Biplab Ranjan Sarkar	Associate Professor
304. School of Bio-Science and Engineering	Dr. Monisha Chakraborty	Professor
305. School of Bio-Science and Engineering	Dr. Piyali Basak	Assistant Professor
306. School of Education Technology	Dr. Matangini Chatopadhyay	Professor
307. School of Education Technology	Dr. Ranjan Parekh	Professor
308. School of Energy Studies	Dr. Tushar Jash	Associate Professor
309. School of Energy Studies	Dr. Ratan Mondal	Associate Professor
310. School of Illumination Science, Engg. and Design	Dr. Kamalika Ghosh	Assistant Professor
311. School of Illumination Science, Engg. and Design	Parthasarathi Satvaya	Assistant Professor
312. School of Material Science and Nanotechnology	Dr. Chandan Kumar Ghosh	Assistant Professor
313. School of Material Science and Nanotechnology	Sri Sourav Sarkar	Assistant Professor
314. School of Material Science and Nanotechnology	Dr. Mahua Ghosh Chaudhuri	Associate Professor
315. School of Mobile Computing and Communication	Smt. Arpita Sarkar	Assistant Professor
316. School of Mobile Computing and Communication	Dr. Punyasha Chatterjee	Assistant Professor
317. School of Water Resource Engineering	Dr. Asis Majumder	Professor
318. School of Water Resource Engineering	Mr. Subhasish Das	Assistant Professor
319. School of Water Resource Engineering	Dr. Pankaj Kumar Roy	Professor
320. School of Nuclear Studies and Application	Dr. Amitabha Das	Associate Professor
321. School of Nuclear Studies and Application	Dr. Mithun Das	Assistant Professor
322. School of Nuclear Studies and Application	Dr. Aranyak Chakravorty	Assistant Professor

## Annual Report 2020-2021

### FACULTY OF SCIENCE & ISLM

Department	Name	Present Designation
1 Chemistry	Dr. Ambikesh Mahapatra	Professor
2 Chemistry	Dr. Chittaranjan Sinha	Professor
3 Chemistry	Dr. Kalyan Kumar Das	Professor
4 Chemistry	Dr. Mahammad Ali (Lien)	Professor
5 Chemistry	Dr. Nitin Kumar Chattopadhyay	Professor
6 Chemistry	Dr. Rina Ghosh	Professor
7 Chemistry	Dr. Samaresh Bhattacharya	Professor
8 Chemistry	Dr. Subrata Mukhopadhyay	Professor
9 Chemistry	Dr. Swapan Kumar Bhattacharya	Professor
10 Chemistry	Dr. Biplab Bhattacharjee	Associate Professor
11 Chemistry	Dr. Gourhari Maiti	Professor
12 Chemistry	Dr. Jnan Prakash Naskar	Professor
13 Chemistry	Dr. Kajal Krishna Rajak	Professor
14 Chemistry	Dr. Kausikisankar Pramanik	Professor
15 Chemistry	Dr. Pradip Kumar Mahapatra	Associate Professor
16 Chemistry	Dr. Sanjay Bhar	Professor
17 Chemistry	Dr. Subrata Nath Koner	Professor
18 Chemistry	Dr. Sujay Baitalik	Professor
19 Chemistry	Dr. Soumen Ghosh	Professor
20 Chemistry	Dr. Umasish Jana	Professor
21 Chemistry	Dr. Umesh Chandra Halder	Professor
22 Chemistry	Dr. Chandan Kumar Mondal	Professor
23 Chemistry	Dr. Arup Gayen	Professor
24 Chemistry	Dr. Suman Das	Professor
25 Chemistry	Dr. Partha Pratim Parui	Professor
26 Chemistry	Dr. Tanurima Bhaumik	Associate Professor
27 Chemistry	Dr. Saubhik Haldar	Associate Professor
28 Chemistry	Dr. Debajyoti Ghoshal	Professor
29 Chemistry	Dr. Saurabh Das	Professor
30 Chemistry	Dr. Partha Ray	Professor
31 Chemistry	Dr. Shouvik Chattopadhyay	Professor
32 Chemistry	Dr. Amrita Saha	Associate Professor
33 Chemistry	Dr. Tapan Kumar Mondal	Professor
34 Chemistry	Dr. Bhibhuti Bhusan Show	Assistant Professor
35 Chemistry	Dr. Arunabha Thakur	Assistant Professor
36 Chemistry	Dr. Amit Saha	Assistant Professor
37 Chemistry	Dr. Samit Guha	Assistant Professor
38 Chemistry	Dr. Mohabul Alam Mondal	Assistant Professor
39 Chemistry	Dr. Partha Mahata	Assistant Professor
40 Chemistry	Dr. Manas Kumar Panda	Assistant Professor
41 Chemistry	Dr. Asamanjoy Bhunia	Assistant Professor
42 Chemistry	Sri Satyadeep Waiba	Assistant Professor
43 Physics	Dr. Argha Deb	Professor



## Annual Report 2020-2021

44	Physics	Dr. Ajay Kumar Ghosh	Professor
45	Physics	Dr. Asim Kumar Ghosh	Professor
46	Physics	Dr. Avijit Mukherjee	Associate Professor
47	Physics	Dr. Basudev Ghosh	Professor
48	Physics	Dr. Brajadulal Chattopadhyay	Professor
49	Physics	Dr. Debasish Biswas	Professor
50	Physics	Dr. Debasish Lohar	Professor
51	Physics	Dr. Kalyan Kumar Chattopadhyay	Professor
52	Physics	Dr. Ruma Ray	Professor
53	Physics	Dr. Subhankar Ray	Associate Professor
54	Physics	Dr. Sukhen Das	Professor
55	Physics	Dr. Sulava Bhattacharyya	Associate Professor
56	Physics	Dr. Tapas Kr. Ballabh	Associate Professor
57	Physics	Dr. Nabin Baran Manik	Professor
58	Physics	Dr. Dhruva Banerjee	Assistant Professor
59	Physics	Dr. Dipankar Mandal (Resign)	Assistant Professor
60	Physics	Dr. Puspendu Sahu	Associate Professor
61	Physics	Dr. Subrata Sarkar	Assistant Professor
62	Physics	Mr. Abiral Tamang	Assistant Professor
63	Physics	Dr. Sk. Saiyad Ali	Associate Professor
64	Physics	Dr. Bharati Tudu	Assistant Professor
65	Physics	Dr. Subhadipta Mukhopadhyay	Associate Professor
66	Physics	Dr. Jayoti Das	Professor
67	Physics	Dr. Pabitra Kumar Paul	Professor
68	Physics	Dr. Partha Pratim Ray	Professor
69	Physics	Dr. Sanjoy Kumar	Professor
70	Physics	Dr. Sarmistha Mandal	Assistant Professor
71	Physics	Dr. Sanat Karmakar	Professor
72	Physics	Dr. Joydeep Chowdhury	Professor
73	Physics	Dr. Abhijit Samanta	Assistant Professor
74	Physics	Dr. Saikat Kumar Seth	Associate Professor
75	Physics	Dr. Mitali Mondal	Professor
76	Physics	Sri Soumen Mondal	Associate Professor
77	Mathematics	Dr. Ashis Kumar. Sarkar	Professor
78	Mathematics	Dr. Sudeshna Banerjea	Professor
79	Mathematics	Dr. Prabir Kumar Kundu	Professor
80	Mathematics	Dr. Prakash Chandra Mali	Professor
81	Mathematics	Dr. Shamik Ghosh	Professor
82	Mathematics	Dr. Subenoy Chakraborty	Professor
83	Mathematics	Dr. Abhijit Lahiri	Professor
84	Mathematics	Dr. Anup Bandyopadhyay	Professor
85	Mathematics	Dr. Arindam Bhattacharyya	Professor
86	Mathematics	Dr. Bibhas Ch. Giri	Professor
87	Mathematics	Dr. Dipak Kumar Kesh	Professor
88	Mathematics	Dr. Farook Rahaman	Professor
89	Mathematics	Dr. Kallol Paul	Professor

## Annual Report 2020-2021

90	Mathematics	Dr. Nandadulal Bairagi	Professor
91	Mathematics	Dr. Narayan Chandra Majee	Associate Professor
92	Mathematics	Dr. Pratulananda Das	Professor
93	Mathematics	Dr. Priti Kumar Roy	Professor
94	Mathematics	Dr. Sagnik Sinha	Professor
95	Mathematics	Dr. Subhas Chandra Mondal	Professor
96	Mathematics	Dr. Sujit Kumar Sardar	Professor
97	Mathematics	Dr. Swapna Debnath	Professor
98	Mathematics	Sri. Buddhadeb Sau	Professor
99	Mathematics	Dr. Manasi Mandal	Associate Professor
100	Mathematics	Dr. Sukhendu Kar	Professor
101	Mathematics	Dr. Nilanjana Mahata	Associate Professor
102	Mathematics	Sri Santosh Biswas	Assistant Professor
103	Mathematics	Dr. Alaka Das	Professor
104	Mathematics	Dr. Gopal Chandra Shit	Professor
105	Mathematics	Dr. Arjun Paul	Assistant Professor
106	Mathematics	Dr. Riddhick Birbonshi	Assistant Professor
107	Mathematics	Dr. Molla Basir Ahamed	Assistant Professor
108	Geological Sciences	Dr. Nibir Mondal	Professor
109	Geological Sciences	Dr. Pulak Sengupta	Professor
110	Geological Sciences	Dr. Subir Mukhopadhyay	Professor
111	Geological Sciences	Dr. Dipak Chandra Pal	Professor
112	Geological Sciences	Dr. Sanjoy Sanyal	Professor
113	Geological Sciences	Dr. Sisir Kanti Mondal	Professor
114	Geological Sciences	Dr. Subir Sarkar	Professor
115	Geological Sciences	Dr. Subrata Karmakar	Professor
116	Geological Sciences	Dr. Supriya Mondal	Professor
117	Geological Sciences	Dr. Anupam Ghosh	Associate Professor
118	Geological Sciences	Dr. Sadhana M. Chatterjee	Assistant Professor
119	Geological Sciences	Dr. Susanta Kr. Samanta	Professor
120	Geological Sciences	Dr. Babar Ali Shah	Assistant Professor
121	Geological Sciences	Dr. Sunipa Mandal	Assistant Professor
122	Geological Sciences	Dr. Tridib Kumar Mondal (Resign)	Assistant Professor
123	Geological Sciences	Dr. Susanta Chaudhuri	Assistant Professor
124	Geological Sciences	Dr. Soumik Mukhopadhyay	Associate Professor
125	Life Science and Bio-Technology	Dr. Ratan Gachhui	Professor
126	Life Science and Bio-Technology	Dr. Parimal Karmakar	Professor
127	Life Science and Bio-Technology	Dr. Biswadip Das	Professor
128	Life Science and Bio-Technology	Dr. Paltu Kumar Dhal	Assistant Professor
129	Instrumentaion Science	Dr. Anup Kumar Ghosh	Associate Professor
130	Instrumentaion Science	Dr. Sachindranath Das	Assistant Professor
131	Geography	Dr. Lakshmi Shivaramakrishnan	Professor
132	Geography	Dr. Debajit Dutta	Assistant Professor
133	Geography	Dr. Arijit Majumder	Assistant Professor
134	School of Oceanographic Studies	Dr. Sugata Hazra	Professor
135	School of Oceanographic Studies	Dr. Tuhin Ghosh	Professor

## Annual Report 2020-2021

136	School of Oceanographic Studies	Dr. Abhra Chanda	Assistant Professor
137	School of Oceanographic Studies	Dr. Rahi Soren	Assistant Professor
138	School of Environmental Studies	Dr. Joydeep Mukherjee	Associate Professor
139	School of Environmental Studies	Dr. Tarit Roy Chowdhury	Associate Professor

**SECTION - B**  
**ACADEMIC REPORT: [01-04-2020 to 31-03-2021]**

## Annual Report 2020-2021

### ACHIEVEMENT OF PROF. CHIRANJIB BHATTACHARJEE PRO-VICE CHANCELLOR (ADMINISTRATION)

#### 4. Research Activities:

##### A. Areas of Research Activities: (Broad Areas)

Membrane Separation process, waste water treatment, environmental pollution control and management, valorization of the solid waste and management, nanomaterial synthesis and application

##### C. Doctoral Research Activities:

Number of students awarded Ph.D  
during the year : 3

Number of Ph.D students registered  
in the Dept./ Shool/Centre : 1

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

1. S. Bhattacharya, D. Gupta, D. Sen, C. Bhattacharjee, Process intensification on the enhancement of allicin yield from *Allium sativum* through ultrasound attenuated nonionic micellar extraction, / Chemical Engineering and Processing - Process Intensification, Elsevier, 169 (2021) 108610. DOI: 10.1016/j.cep.2021.108610.
2. A. Mazumder, Z. Chowdhury, D. Sen, C. Bhattacharjee, Electric field assisted membrane separation for oily wastewater with a novel and cost-effective electrocoagulation and electroflotation enhanced membrane module (ECEFM), *Chemical Engineering and Processing-Process Intensification*, 151 (2020) 107918. DOI: 10.1016/j.cep.2020.107918

##### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

1. S. Bhattacharya, A. Mazumder, D. Sen, C. Bhattacharjee, "Bioaugmentation technology to remove oil from oily wastewater using isolated Actinobacteria", in book "Advances in Environmental Research", Volume 79, chapter 3, ISBN: 978-1-53618-879-0, Nova Publishers, 2020.
2. A. Mazumder, D. Sen, C. Bhattacharjee, "Optimization of oily wastewater treatment process using neurofuzzy adaptive model", in book "Computational Intelligence. Theoretical Advances and Advanced Applications", Walter De Gruyter, Germany, 2020, DOI: 10.1515/9783110671353-011.
3. S. Bhattacharya, A. Mazumder, D. Sen, C. Bhattacharjee, "Bio augmentation technology to remove oil from oily wastewater using isolated Actinobacteria", in book "Advances in Environmental Research", Nova Publishers, Volume 79, Chapter 3, ISBN: 978-1-53618-879-0, 2020.
4. S. Bhattacharya, A. Mazumder, D. Sen, C. Bhattacharjee, "Bioremediation of dye using mesophilic bacteria: mechanism and parametric influence", in book "Dye Biodegradation: Mechanisms and Techniques", Springer Singapore, ISBN 978-981-16-5932-4. (in press; 2021)
5. A. Mazumder, Z. Chowdhury, D. Sen, C. Bhattacharjee, "Study on Application of Novel Synthesized Silver Metallosurfactant for Membrane Cleaning", in book "Advances in Bioprocess Engineering and Technology. Lecture Notes in Bioengineering", Springer, Singapore, 2021, DOI: 10.1007/978-981-15-7409-2\_30.
6. P. Das, C. Bhattacharjee, "Removal of Hazardous Dyes from Waste Water in a Green and Cost-Effective Way", in book "Advances in Water Resources Management for Sustainable Use", Springer, Volume 131, chapter 11, 2021, [https://doi.org/10.1007/978-981-33-6412-7\\_11](https://doi.org/10.1007/978-981-33-6412-7_11)
7. A. Das, R. Das, C. Bhattacharjee, "Isolation and Characterization of Arsenic Tolerant Bacteria from Industrial soil and analysing its metal removal potency", as lecture notes in bioengineering, in book "Advances in Bioprocess Engineering and technology", ISBN- 978-981-15-7408-5, 978-981-15-7409-2(e-book). Springer, Singapore.

## Annual Report 2020-2021

8. A. Das, R. Das, C. Bhattacharjee, "Green Nano-bioremediation Process for Ultimate Water Treatment Purpose", in book "Microbial Technologies in Industrial Waste Water", Springer, Singapore (Under process).
9. S. Banerjee, R. Das, C. Bhattacharjee, "Biofuel Cells for Water Desalination". In "Bio fuel Cells" (eds. Inamuddin, M.I. Ahamed, R. Boddula and M. Rezakazemi), 2021, <https://doi.org/10.1002/9781119725008.ch13>
10. S. Banerjee, R. Chakraborty, R. Das, C. Bhattacharjee, "Overview on natural materials for oil/water separation" in book "Advances in oil-water separation: A complete guide for physical, chemical, and Biological processes", (Editors: Papita Das Suvendu Manna Jitendra Pandey), ISBN: 978032389978 [In publication]

### F. Research Articles Published in Conference Proceedings during the year:

**(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year):**

- 1) S. Banerjee, R. Das, C. Bhattacharjee, "Novel Porous Ternary Mg-Al-Ti Oxide Composite Nano-Adsorbents with Extremely High Arsenic Removal Capacity", in 2020 AICHE Virtual Annual Meeting, November, 2020
- 2) P. Das, C. Bhattacharjee, "Natural Adsorbent Incorporated Polymer Composite Membrane for Waste Water Treatment", International Conference on Sustainable Waste Management towards Circular Economy (IconSWM-CE 2020) held at Jadavpur University, Kolkata, India, 02-04 December, 2020.
- 3) S. Banerjee, A. Mondal, R. Das, C. Bhattacharjee, "Hydrophilicity improvement of Polysulfone Membrane using Different Weight Percentages of Polyvinylpyrrolidone and a Performance Study in Dairy Wastewater Ultrafiltration", International Conference on Sustainable Waste Management towards Circular Economy (IconSWM-CE 2020) held at Jadavpur University, Kolkata, India, 02-04 December, 2020
- 4) M. Chakraborty, R. Das, C. Bhattacharjee, "Synthesis of Mg-Fe and Cu-Al Layered Double Hydroxide and its Adsorption Performance for Removal Of Arsenic Toxicity", International
- 5) Online Congress on Membranes and Membrane Assisted Processes (ICMMAP – 2021) held at Kottayam, Kerala, India, 12- 14 February, 2021.
- 6) P. Das, C. Bhattacharjee, "Synthesis of Natural Adsorbent Incorporated Polymer Composite Membrane for the Removal of Hazardous Dyes from Waste Water", FET JU R&D EXPOSITION-2021 (online Webinar) under TEQIP-III R&D programme held at Jadavpur University, Kolkata, India, 26-27 February, 2021.
- 7) M. Chakraborty, R. Das, C. Bhattacharjee, "Mg-Fe and Cu-Al based layered double hydroxide derived adsorption materials for removal of arsenic toxicity from ground water", FET JU R&D EXPOSITION-2021 (online Webinar) under TEQIP-III R&D programme held at Jadavpur University, Kolkata, India, 26-27 February, 2021.

### 6. Major Achievements of the Department/School/Centre during the year:

**Any other Honours received by the Faculty Members:**

**(Name of the Faculty Member–Name of the Award/ Honour–Awarding Institute–Place):**

Prof. Chiranjib Bhattacharjee–President of West Bengal Council for Higher Secondary Education with effect from 16th August 2021–Govt. of West Bengal–West Bengal

**Awards received by Research Scholars/students:**

**(Name of the Research Scholar/ Student–Name of the Award/ Honour–Awarding Institute–Place):**

Somakraj Banerjee–IconSWM-CE Award – 2020 for Excellent Presentation–Jadavpur University Kolkata

## **Annual Report 2020-2021**

### **Any Other Major Achievements:**

Members of Project Review and Monitoring Committee under the Technology Information, Forecasting and Assessment Council (TIFAC-SIDBI Srijan Program) Department of Science & Technology, Govt. of India.

**FACULTY COUNCIL OF ARTS: DEPARTMENTS**



## Annual Report 2020-2021

### BENGALI

Phone: 033-2457-2232/2124

H.O.D : Dr. Barendu Mondal

Dr. Rajyeswar Sinha (Since 22.6.2020)

Email: hod.bengali@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

- To widen the scope of interdisciplinary studies while keeping in mind the history of Bengali language and literature as a discipline.

##### B. Mission:

- To orient the curriculum, teaching-learning, and research so that the extent of academics can be broadened and a global identity can be established.
- Simultaneously, to fulfil the responsibilities as a public institute in providing intellectual support for the study and practice of Bengali culture and facilitating higher education through the Bengali language.
- To maintain the consistency of higher education and research and thereby increase the opportunities for students and researchers to establish themselves in future.
- After successfully completing DRS-SAP, Phase II, to upgrade as a UGC CAS department so that the opportunities for research are increased.
- To combat the global challenges against the study of Bengali language and literature and try to create a fruitful outcome that would secure the future of students.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
UG		1 <sup>st</sup> year	62
		2 <sup>nd</sup> year	42
		3 <sup>rd</sup> year	71
PG		1 <sup>ST</sup> year	141 (Day-74+Evening-67)
		2 <sup>nd</sup> year	138 (Day-72+Evening-66)
M.Phil		1 <sup>ST</sup> year	18
		2 <sup>nd</sup> year	18

#### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
5	1	4	7

## Annual Report 2020-2021

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

Aspects of Modernities: Literary and Cultural Experiences of 19<sup>th</sup> and 20<sup>th</sup> Century Bengal

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
'Gambhira': Its History, Practice and Application in Modern Theatre	Departmental	<b>Sekhar Samaddar</b>	DRS –SAP, Phase 2	5 Years
Digitization and Archiving Bengali Books, Journals and Documents	Departmental	<b>Sampa Chaudhuri</b>	DRS- SAP, Phase 2	5 Years
Locating Cultural Others: Surveys and Documentation on the Evolution of Tribal Cultural Practices in Selected Districts of Indian Sundarbans	Departmental	<b>Ananya Baruya</b>	DRS- SAP, Phase 2	5 Years
Digitization and Archiving of Folk Culture	Departmental	<b>Ananya Baruya</b>	DRS- SAP, Phase 2	5 Years
Reception of the Idea of 'Modernity': Response of the Scholars from Bengal	Departmental	<b>Abdul Kafi</b>	DRS – SAP, Phase 2	5 Years
Narrative of 'Kheya' : In the Context of Indian Sundarbans	Departmental	<b>Barendu Mandal</b>	DRS – SAP, Phase 2	5 Years
Quest for Identity: A case Study of Bengali Muslims	Departmental	<b>Rajyeswar Sinha</b>	DRS- SAP, Phase 2	5 Years

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
2	2

#### D. Research Articles Published in Journals during the year (International/National Peer reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

**Annual Report 2020-2021**

<b>Name of the author (s)</b>	<b>Title of the article</b>	<b>Name of the journal</b>	<b>ISSN</b>	<b>Year</b>
<b>Sekhar Kumar Samaddar</b>	Sakali Haralona, Kichu Thekeo Galo	Desh	N/A	December, 2020
	Salil Bandhyopadhyay	Pashchim banga Natya Academy Patrika	N/A	January, 2021
	Natoke Moulikota	Sayak Natyapatra	N/A	2020
	Theatre, Sankat o Ajker Bastabata	Bhabna Theatre	N/A	2020
	Kichu-Mrittyu: Voy o Viti	Purba Paschim	N/A	2020

<b>Name of the author(s)</b>	<b>Title of the article</b>	<b>Name of the journal</b>	<b>ISSN</b>	<b>Year</b>
<b>Sampa Chaudhuri</b>	Kabita Singher Golpo Ekti Amimangsito Proshno	Bangla Bibhagiyo Patrika, Jadavpur University	N/A	January, 2021

<b>Name of the author(s)</b>	<b>Title of the article</b>	<b>Name of the journal</b>	<b>ISSN</b>	<b>Year</b>
<b>Ananya Baruya</b>	Lokosanskritir Amimansita Prosongo	Sahitya O Sanskriti: Bangla Milon Setu	N/A	January, 2021
<b>Ananya Baruya</b>	Khandan: Ekti Paramparagata Oitihyer Sandhan	Sukhopath	N/A	August, 2020

<b>Name of the author(s)</b>	<b>Title of the article</b>	<b>Name of the journal</b>	<b>ISSN</b>	<b>Year</b>
<b>Barendu Mandal</b>	Eco-Criticism O Bangla Chotogalpo	Bangla Bibhagiyo Patrika, Jadavpur University		January, 2021
	Kobitar Matir Kobita Athoba Prokito Krishok Matie Kobita	Banani	2581-9828	March, 2021
	Michiler Sei Mukh	Nandan		

- E. Research Articles Published in Edited Volumes during the year:**  
**(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):**

**Annual Report 2020-2021**

<b>Name of the author(s)</b>	<b>Title of the article</b>	<b>Name of the editor(s)</b>	<b>Name of the journal/ Book</b>	<b>ISSN/ ISBN</b>	<b>Year</b>
	Sundarban Anchaler Nariprogoti O Bina Kanjilal	Barendu Mandal	Dwipbhumi Sundarban	978-81-942772-6-2	2020
<b>Ananya Baruya</b>	Subodh Ghosher Golpe Somoy O Samaj	Subrata Das	Subodh Ghosh Sanskar, Dey's Publishing	978-81-949432-9-7	2020

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**A. Books/Monographs Published:**

<b>Name of the Author (s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
<b>Joydeep Ghosh</b>	Prasanta Chandra Mahalanabis O Rabindra-Granthaprakasher Day Dayitwa	Spark Book Company	978-93-86746-79-5	2020
<b>Ananya Baruya</b>	Malpaharia	DRS-SAP, Phase 2, Dept. of Bengali, JU		2020

**B. Books/Monographs Edited:**

<b>Name of the Editorsr(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
<b>Barendu Mondal</b>	Dwipbhumi Sundarban	Choya	978-81-942772-6-2	2020

<b>Name of the Editorsr(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
<b>Rajyeswar Sinha</b>	Apon Hote Bahire	DRS-SAP Phase 2, Department of Bengali, Jadavpur University	978-93-83660-68-1	May, 2020

<b>Name of the Editor(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
<b>Joydeep Ghosh</b>	Smritikathay Santiniketan	DRS-SAP Phase 2, Department of Bengali, Jadavpur University	978-93-83660-69-8	2020

## Annual Report 2020-2021

### F. Invited Lectures Delivered/Sessions Chaired:

#### Sekhar kumar Samaddar:

Type of Participation	Name of the Conference/Seminar	Place	Duration
Lecture delivered on 'Theatre Peshadar Hoya Jai Kina'	Organized by Baksa Bratya Natyajana O Theatre Works Repertory, 2020	Online	1 hour
Lecture delivered on 'Natak Path O Alochana'	Organized by Shilpayan Natyavidyalay, 2020	Online	1 hour
Lecture delivered on 'Rabindra Natoke Kabyagun'	Organized by Durgapur Suraparisad Musical Academy, 2021	Online	1 hour
Lecture delivered on 'Theatre Pesha Na Neshu'	Organized by Jago Bangla, 2021	Online	1 hour
Lecture delivered on 'Theatre Bhabisyat'	Organized by Balark Webinar, 2021	Online	1 hour
Lecture delivered on 'Atimarite Theatrer Bhabisyat'	Organized by Asansol Charjapad, 2020	Online	1 hour
Lecture delivered on 'Theatrer Dinkal'	Organized by Your Platform, 2020	Online	1 hour

#### Sampa Chaudhuri:

Type of Participation	Name of the Conference/Seminar	Place	Duration
Lecture delivered on 'Shatabarse Bimal Kar'	Organized by Educational and Cultural Station (Belur), 2021	Online	1 hour

#### Ananya Baruya:

Type of Participation	Name of the Conference/Seminar	Place	Duration
Lecture delivered on 'Debesh Ray: Anya Jibon Anya Kotha'	Organized by Shyamaprasad College, 2020	Online	1 hour
Lecture delivered on 'Sahitya O Sanskritite Pex O Harmoni Tatwa'	Organized by Suchetana Little Magazine, Assam, 2020	Online	1 hour
Lecture delivered on 'Desh O Deshamatrika Gane O Kothay'	Organized by Suchetana Little Magazine, Assam, 2020	Online	1 hour
Lecture delivered on 'Shankha Ghosher Rachanay Shoishab, Smriti'	Organized by Culture O Coyest, 2021	Online	1 hour

#### Barendu Mondal:

Type of Participation	Name of the Conference/Seminar	Place	Duration
Lecture delivered on 'Satobarse Bangladesher Chotogolpo'	Organized by Educational and Cultural Station (Belur), 2020	Online	1 hour

**Annual Report 2020-2021**

Lecture delivered on 'Eco-Criticism o Bangla Uponnyas'	Organized by Educational and Cultural Station (Belur), 2020	Online	1hour
Lecture delivered on 'Eco-Criticism O Bangla Uponnyas'	Organized by Educational and Cultural Station (Belur), 2020	Online	1hour
Lecture delivered on 'Atmaparichayer Sankat O Chhitmahaler Akhyan'	Organized by Department of Bengali, Dinabandhu Mahavidyalaya, 2020	Online	1hour
Lecture delivered on 'Bangladesher Sahityasanskriti: Swaruper Sandhane (Lecture title: Adhunikota O Bangladesher Uponnyas)'	Organized by Department of Bengali, Purbasthali College, 2020	Online	1hour
Lecture delivered on 'Bangla Sahittyte Atimari O Mohamari (Lecture title: Mohamari O Mrityur Rupakalpa)'	Organized by Department of Bengali, Brahmananda Kesab Chandra College, 2020	Online	1hour
Lecture delivered on 'Bangalir Atmoparichayer Swarup Sandhan: Bangladesher Sahitya'	Organized by Department of Bengali, Baharampur Girls College, 2020	Online	1hour
Lecture delivered on 'Satabarse Bangladesher Chotogalpo'	Organized by Educational and Cultural Station(Belur), 2020	Online	1hour
Lecture delivered on 'Gunomoy Manna swarak boktrita (Lecture title: Krishir Chalchitra: Krishak Andolon O Bangla Kotha Sahitya'	Organized by Department of Bengali, Prabhat Kumar College, 2020	Online	1hour
Lecture delivered on 'Chhitmahaler Akhyan: Kotha Sahityer Notun Porisar'	Organized by Department of Bengali, Vivekananda College, 2020	Online	1hour
Lecture delivered on 'Khider Kothokota O Bish Sataker Bangla Akhyan'	Organized by Department of Bengali, Prabhat kumar College, 2020	Online	1hour
Lecture delivered on 'Manobiki Vidya o Sahitya Bhabna: Antosomporko' Lecture Title: Poribesh, Unnyoyon O Manusher Somporker Khotiyan: Ekti Poribeshbadi Path'	Organized by Sagar Mahavidyalay, 2020	<a href="https://you.tube/NTjMfwmRFHk">https://you.tube/NTjMfwmRFHk</a>	1hour
Lecture delivered on 'Kothakar Hasan Ajijul Haque'	Organized by Aliya Sanskriti Samsad, 2020	<a href="https://you.tube/wlXsbswZkl8">https://you.tube/wlXsbswZkl8</a>	1hour
Lecture delivered on 'Antarjatic Matribhasha Upolokhhye'	Organized by Bharat Bangladesh Moitri Samiti, 2021	Online	1hour

## Annual Report 2020-2021

### Rajyeswar Sinha:

Type of Participation	Name of the Conference/Seminar	Place	Duration
Lecture delivered on 'Unish Shatake Lekha Rannar Boi Ebong Porichayer Satyi-mithye'	Organized by Educational and Cultural Station, 2020	<a href="https://youtube.com/watch?v=oLpXxETJ2bE">https://youtube.com/watch?v=oLpXxETJ2bE</a>	1 hour
Lecture delivered on 'Projukti O Bangla Bhasha Byabohar'	Organized by Department of Bengali, Khejuri College in Collaboration with IQAC, 2020	Online	1 hour

### Abdul Kafi:

Type of Participation	Name of the Conference/Seminar	Place	Duration
Lecture delivered on 'Probahoman Bangla Sahitye Somoychetona: Byakti O Somostir Dwndo'	Organized by Department of Bengali, Bankura University, 2020	<a href="https://youtube.com/watch?v=Voll7iJiv60&amp;list=PLk0hYWPNmlwRWrmLkoMxvoFZQvRj5-COK&amp;index=2">https://youtube.com/watch?v=Voll7iJiv60&amp;list=PLk0hYWPNmlwRWrmLkoMxvoFZQvRj5-COK&amp;index=2</a>	1 hour
Lecture delivered on 'Anubade Kobita'	Organized by Department of Bengali, KK Das college in Collaboration with IQAC, 2020	<a href="https://youtube.com/watch?v=BjFwL6YgbQg">https://youtube.com/watch?v=BjFwL6YgbQg</a>	1 hour
Lecture delivered on 'Bibhutibhusaner 126 Bochor Jonmobarshiki Upolokhhye'	Organized by Bibutibhusan Banerjee Facebook Page and Maichel Madhusudan Memorial College, 2020	<a href="https://youtube.com/watch?v=XxKIKnQQ6Zk">https://youtube.com/watch?v=XxKIKnQQ6Zk</a>	1 hour
Lecture delivered on 'Swadhinota Paraborti Bangla Sahitye Sadharon Manusherjibon O Jibika'	Organized by Maickel Madhusudan Memorial College, 2020	<a href="https://youtube.com/watch?v=gcSEZaUHL30">https://youtube.com/watch?v=gcSEZaUHL30</a>	1 hour
Lecture delivered on 'Pondit Vidyasagar o Akhay Kumar Duttaer Dwisato Janmobarshiki Upolokhhye'	Organized by Pathabhavan School, 2020	<a href="https://youtube.com/watch?v=bmci2nxsOKo">https://youtube.com/watch?v=bmci2nxsOKo</a>	1 hour
Lecture delivered on 'Bhut Smriti Sottya'	Organized by Bhuttattwafacebook Page, 2020	<a href="https://www.facebook.com/BhootTotty/videos/371747877267902">https://www.facebook.com/BhootTotty/videos/371747877267902</a>	1 hour
Lecture delivered on 'Vidyasagarer Dwisato Janmobarshiki Upolokhhye'	Organized by Bangiyo Sahitya Parisat, 2021		1 hour

### Joydeep Ghosh:

Type of Participation	Name of the Conference/Seminar	Place	Duration
Lecture delivered on 'The Challenges in Higher Education in Post-Pandemic Era'	Organized by Burdwan Raj College, 2020	Online	1 hour

### Annual Report 2020-2021

Lecture delivered on 'Bish Shataker Bangla Sahitya O Mahamari'	Organized by Department of Bengali, Viswabharati University, 2020	Online	1hour
Lecture delivered on 'Prasanga : Rabindranath'	Organized by Jangipur College, Murshidabad, 2020	Online	1hour
Lecture delivered on 'Unish Shataker Juktibad O Vidyasagar'	Organized by Ashutosh College, Kolkata, 2020	Online	1hour
Lecture delivered on 'Socializing Distance: Pandemic and Human Relations'	Organized by Bhawanipur Education Society College, Kolkata, 2020	Online	1hour
Lecture delivered on 'Bangla Akhyan Rachanay Nari : Mahasweta Devi O Selina Hossain'	Organized by Guskara College, Burdwan, 2020	Online	1hour
Lecture delivered on 'Revisiting 21 February'	Organized by Shimuruli Sachinandan College of Education, Nadia, 2020	Online	1hour

#### 8. Students Progression during the year:

##### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
74	PG	B.Ed	Jadavpur University, Visva-bharati, University of Calcutta, WBTTEPA, University of Burdwan, Kalyani University, Asam University, Ramakrishna Mission Shikshan Kendra, St. Xavier's College
10	PG	M.Phil	Jadavpur University, Diamond Harbour Women's University, University of Calcutta, Ramakrishna Mission Vidyamandira, Kalyani University, University of Burdwan, North Bengal University
1	PG	Ph.D	Cooch Behar Panchanan Barma University

##### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	5
State Government Services	4
Any Other	2 (INDIAN POSTAL SERVICE)



## Annual Report 2020-2021

### COMPARATIVE LITERATURE

Phone: 033-2414-6690

033- 2457-2223

H.O.D: Dr. Sayantan Dasgupta

Dr. Sujit Kumar Mandal (since 9.2.2021)

E mail: hod.comp.lit@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

The Department of Comparative Literature was started in the year 1956 and enjoys the reputation of a distinguished department to offer a subject which is distinct not only in India, but also in Asia. For the last two decades, the department has widened its sphere of learning to all-important Indian languages for comparative studies. It also exerts special emphases on African, Latin American and Australian Literature that are otherwise neglected in the taught programmes of the major departments of the Indian Universities. The Department of Comparative Literature is renowned for its originality nationwide and serves as an exemplary model for other Universities as well. It seeks to incorporate a wide range of subjects and issues under its purview, an approach which is highly conducive for a multi-lingual, pluri-religious country like India.

##### B. Mission:

Comparative Literature as a discipline is concerned with mapping the varieties of the "literary phenomenon", the process by which it forms, crystallises and moves between and across the literary systems and languages. The study of Comparative Literature, therefore is a dynamic, context related exercise. Major texts from all over the world, whether orally transmitted, performed or written come within the purview of our readings, and our primary consideration is their relation with the context in which they are written, their reception in the contexts in which they are read, their relevance to the thematological or genological process of literature that cuts across single literary systems in specific languages.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BA		1 <sup>st</sup> year	68
		2 <sup>nd</sup> year	40
		3 <sup>rd</sup> year	77
MA		1 <sup>st</sup> year	67
		2 <sup>nd</sup> year	57
M.Phil			17

#### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
4	5	1	9

On lien: 3 (1 Professor, 1 Associate Professor, 1 Assistant Professor)

## Annual Report 2020-2021

Vacant: 4 (2 Professor, 1 Associate Professor, 1 Assistant Professor; 3 posts have advertised)

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

##### (a) Comparative Literature: Texts, Contexts, Methods:

- Issues and aspects related to Comparative Literature pedagogy specifically keeping in mind the Indian context
- With the recent considerable growth of Comparative Literature Departments, as well as Centres and Schools:
- A demand is growing for text material for core courses on 'Comparative Literature: Definition, Scope, History,' which will be sought to be met.

##### (b) Inter-literary Transactions: Indian and Asian Contexts:

- In today's globalized world, there is an ever greater need to find the right balance between opening the doors to the world and understanding Indian literatures in their multiplicity, and the interconnections within India and among Asian languages, literatures and cultures, without shutting the doors on non-Asian language literatures.

##### (c) Interactions between Literature and other Knowledge Systems:

- issues related to orality, oral history
- testimonial literature,
- the storytelling tradition,
- performance.

#### C. Doctoral Research Activities

Number of students awarded Ph.D. during the	Number of Ph.D. students registered in the Department
2	9

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

Kunal Chattopadhyay, কুশবিপ্লবঃ এক শতাব্দীর ইতিহাসচর্চা: অন্তিমপর্ব (Part II of a two-part article) Bahuvrihi, 6 April, 2020, <https://bahuvrihi.in/>

Kunal Chattopadhyay, Class Struggle and the Pandemic, Against the Current, No. 206, May/June, 2020, <https://againstthecurrent.org/atc206/india-class-struggle-pandemic/> (online version)

Kunal Chattopadhyay, প্রগতি সাহিত্য আন্দোলন ও বাংলা কবিতা নিয়ে একটি বিতর্ক, Bahuvrihi, 19 June, 2020, <https://bahuvrihi.in/>

Kunal Chattopadhyay, The Struggle Against Dalit Oppression in India – Jacobin, <https://www.jacobinmag.com/2020/07/dalit-india-ambekar-teltumbde>, 31/07/2020

Kunal Chattopadhyay – Ambedkar and Indian Nationalism, All About Ambedkar: A Journal on Theory and Praxis, Volume 2, Issue 1, January-April, 2021.

Sayantana Dasgupta, Manto Reloaded, Hussein Remixed: Exploring Intermedial Translation in South Asia" in Jadavpur Journal of Comparative Literature 56. Kolkata: Jadavpur University, 2020

Sayantana Dasgupta, "Celebrating Nabaneeta Dev Sen: Of Teleportation and Time Travel" in A J Thomas ed., Indian Literature 316. New Delhi: Sahitya Akademi. March-April 2020.

Sayantana Dasgupta, "Chandrabati's Ramayan" in A J Thomas ed., Indian Literature 320. New Delhi: Sahitya Akademi, November-December 2020.

## Annual Report 2020-2021

Sayantana Dasgupta, "Bringing Home Magic Realism: Manabendra Bandopadhyay" in A Dev Sen ed., Indian Literature 321. New Delhi: Sahitya Academy, January-February, 2021.

Sayantana Dasgupta, "Careful Custodian of Culture: Swapan Majumdar" in A Dev Sen ed., Indian Literature 321. New Delhi: Sahitya Akademi, January-February 2021.

Sayantana Dasgupta, "The Modern Indian Short Story" (Manabendra Bandyopadhyay). Tr. In A Dev Sen ed., Indian Literature 321. New Delhi: Sahitya Akademi, January-February 2021.

পার্থসারথি ভৌমিক, 'ডিজিটাল হিউম্যানিটিস ও বাংলা ডিজিটাল আর্কাইভ: পর্যালোচনা ও পরিস্থিতি', বাংলা বিভাগীয় পত্রিকা, যাদবপুর বিশ্ববিদ্যালয়, ২০২০ – ২০২১

### E. Research Articles Published in Edited Volumes during the year:

**(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):**

Sayantana Dasgupta, "Tale of a Brahmin and a Shudrani" (Kalyani Thakur). Tr. In Panchali Ray ed., Women Speak Nation. London and New York: Routledge, 2020.

Sayantana Dasgupta, "Translating Chandrika in its Centenary Year" in Kabita Lama ed., Chandrika: Shatabarshiki Visheshank. Darjeeling: Gorkha Jan Pustakalaya. December 2020.

Epsita Halder, "Shia women and their 'place-making': gendered agency in the Muharram gatherings in Kolkata", In Women Speak Nation: Gender, Culture, and Politics, 59-78 Editor: Panchali Ray, Routledge, ISBN 978-0-367-89837-3 Year of Publication: 2020 (December)

### F. Research Articles Published in Conference Proceedings during the year:

**(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year):**

Sumit Kumar Barua, "Haraprasad Sashtir Drishtite Bauddha 'Nirvana' Bhabha", Bodhibharati, 44-48. 2021.

Sumit Kumar Barua, "Manab Samaje Bhabnar Prasangikata", Korok Sahitya Patrika, Bharater Dharma Porichoy, 26-37, January-April, 2021.

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### A. Books/Monographs Published:

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Parthasarathi Bhaumik	Bengalis in Burma: A Colonial Encounter (1886-1948)	Routledge		2021
Parthasarathi Bhaumik	Mahatma O Kabi (Mahatma o Kabi: Gandhi o Rabindranather Parosporik Chithipotro o Bitorko 1915-1941)	National Book Trust India		2020
Sumit Kumar Barua	Bismrita Yatri Nichiki Kimura	Spark Book Company	ISBN: 978-93-91306-28-1	2021

#### B. Books/Monographs Edited:

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Sumit Kumar Barua	Sishu Kishor Potrika-Prosongo Bouddha Sanskriti	Dey's Publishing	978-93-90467-68-6	2021

**Annual Report 2020-2021**

**C. Seminar/Workshop/Conference/Symposium Organized:**  
(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

<b>Name of the Seminar/Workshop/Conference /Symposium</b>	<b>Name of the Coordinator(s)/ Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
A series of five webinars on Locating Indigeneity and Rearticulating Resistance: “Karbi Studies Today” “Santhali Studies Today” “Bodo Studies Today” “Theory and Practice with Emerging Scholars” “Chhabra Studies Today”	<b>Suchorita Chattopadhyay</b> (Joint Coordinator) and <b>Debashree Dattaray</b> (Joint Coordinator)	(Online) Centre for Canadian Studies, Jadavpur University		07.09.20, 16.09.20, 24.09.20, 29.09.20, 4.10.20.
12 <sup>th</sup> Annual Debrupa Bal Memorial National Students’ Seminar “Cartographers of Literatures: The Arrivals and Departures of Nabaneeta Deb Sen and Manabendra Bandopadhyay”	<b>Epsita Halder</b> with <b>Sumit Kumar Barua</b>	(Online) Department of Comparative Literature, Jadavpur University, Kolkata		26.11.20 27.11.20 28.11.20
“Diasporic Identities and Cultural Brokering”	<b>Suchorita Chattopadhyay</b> (Coordinator) and <b>Debashree Dattaray</b> (Joint Coordinator)	(Online) Centre for Canadian Studies, Jadavpur University		07.12.20
নিরীশ্বর পাখিদের উপাসনালয়ে  Alokeranjan Dasgupta Memorial Congregation	<b>Epsita Halder</b>	(Online) Department of Comparative Literature, Jadavpur University, Kolkata		13.12.20
International Conference on “Global Education and Humanities in the time of Covid 19: Challenges and Perspectives beyond Borders”	<b>Suchorita Chattopadhyay</b> (Coordinator) and <b>Debashree Dattaray</b> (Joint Coordinator)	(Online) Centre for Canadian Studies, Jadavpur University		09.02.21 10.02.21

**D. Refresher Courses Organized:**  
(Name of the Teachers, Title of the Course, if any, Duration, Place):

<b>Title of the Course</b>	<b>Name of the Coordinator(s)</b>	<b>Place</b>	<b>Date</b>

**Annual Report 2020-2021**

Literary Studies and the Question of Interdisciplinarity (IDC)	<b>Kunal Chattopadhyay</b>	Department of Comparative Literature, Jadavpur University. (Online)	07.01.21 to 21.01.21
--	----------------------------	--	----------------------

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Kunal Chattopadhyay</b>	Delivered a talk on “Greek Art and Greek Literature”	Refresher course on: Literary Studies and the Question of Interdisciplinarity	(Online) Department of Comparative Literature, Jadavpur University	21.01.21
<b>Kunal Chattopadhyay</b>	Chaired a session	Persian-Arabic Poetics in the Context of Indian Poetics: Readings, Recoveries and Reorientations in South Asian Literatures	(Online) CLAI in collaboration with Bhagat Phool Singh Mahila Vishwavidyalaya	15-17.03.21
<b>Suchorita Chattopadhyay</b>	Keynote address on “Comparative Literature and Translation Studies”	Refresher Course	(Online) Department of English, Guwahati University	12.11.20
<b>Suchorita Chattopadhyay</b>	Invited lecture on “The Relevance of Translation in Comparative Literature”	Refresher course on Literary Studies and the Question of Interdisciplinarity	(Online) Department of Comparative Literature, Jadavpur University	09.01.21
<b>Suchorita Chattopadhyay</b>	Moderator	Locating Indigeneity and Rearticulating Resilience: Santali Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24.09.20
<b>Suchorita Chattopadhyay</b>	Moderator	Locating Indigeneity and Rearticulating Resilience: Bodo Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24.09.20
<b>Suchorita Chattopadhyay</b>	Moderator	Locating Indigeneity and Rearticulating Resilience: Chhara Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24.09.20

**Annual Report 2020-2021**

<b>Suchorita Chattopadhyay</b>	Moderator	Locating Indigeneity and Rearticulating Resilience: Theory and Practice with Emerging Scholars Today	(Online) Centre for Canadian Studies, Jadavpur University	29.09.20
<b>Sayantana Dasgupta</b>	Invited Lecture on “Travels with Tintin”		(Online) Department Of English, Shibpur Dinobundhoo Institution (College)	08.08.20
<b>Sayantana Dasgupta</b>	Invited Lecture on “Englishing India: Turn-of-the-Century Translation Practices		(Online) British Centre for Literary Translation, University of East Anglia, Seminar Talk	09.12.20
<b>Sayantana Dasgupta</b>	Invited Lecture on Literary Studies in India: The Curious Case of Comparative Literature	Refresher Course on ‘Literary Studies and the Question of Interdisciplinarity’	(Online) Department of Comparative Literature, Jadavpur University	09.01.21
<b>Sayantana Dasgupta</b>	Invited Lecture on “Contextualising Comparative Literature	Refresher Course	(Online) Department Of English, Aligarh Muslim University	16.01.21
<b>Sayantana Dasgupta</b>	Invited Lecture on “The Curious Case of Indian Literature”	Exchange Programme Orientation	(Online) Techno International New Town	17.02.21
<b>Sayantana Dasgupta</b>	Invited lectures (2) on “Academic Social Responsibility and Pedagogy in the Humanities: Towards Interdisciplinarity” and “Academic Social Responsibility and the Translation and Teaching of Indigenous and Marginalised Literatures”	Faculty Induction Programme	Jadavpur University (Online)	22.02.2021

**Annual Report 2020-2021**

<b>Sayantana Dasgupta</b>	Invited Lectures (2) on “In Black and White and Colour: Tintin Travels to the Congo” and “Academic Social Responsibility and Pedagogy in the Humanities: Towards Interdisciplinarity”	Faculty Induction Programme	Jadavpur University (Online)	01.03.21
<b>Sayantana Dasgupta</b>	Invited Lecture on “Manto Reloaded, Husain Remixed: Exploring Intermedial Translation in South Asia	Refresher Course on “Protean Wor(l)ds: Literary and Cultural Metamorphosis”	(Online) Department of English, Jadavpur University	02.03.21
<b>Sayantana Dasgupta</b>	Invited Lecture on “Contextualising Comparative Literature: The Indian Scenario	Refresher Course on “Comparative Literary Studies: Indian Dimension”	Department of Comparative Indian Language and Literature, University of Calcutta (Online)	04.03.21
<b>Sayantana Dasgupta</b>	Invited Lecture on “India in Translation; Translation in India”	Faculty Induction Programme	(Online) Jadavpur University	12.03.21
<b>Sayantana Dasgupta</b>	Invited Lecture on “Exploring Intermedial Translation in South Asia” (2)	Faculty Induction Programme	(Online) Jadavpur University	16.03.21
<b>Sayantana Dasgupta</b>	Chaired a session on Tarjama	International Conference of the Comparative Literature Association of India on “Persian-Arabic Poetics in the Context of Indian Poetics: Readings, Recoveries and Reorientations in South Asian Literatures” organized in collaboration with the Bhagat Phool Singh Mahila Vishwavidyalaya and the National Council for	CLAI in collaboration with Bhagat Phool Singh Mahila Vishwavidyalaya and the National Council for Promotion of Urdu Language (NCPUL) (Online)	16.03.21

**Annual Report 2020-2021**

		Promotion of Urdu Language (NCPUL)		
<b>Parthasarathi Bhaumik</b>	Plenary lecture	International Conference on 'Confronting the 'Global', Exploring the 'Local': Digital Apprehensions of Poetics and Indian Literature(s)'	Jamia Millia Islamia University, New Delhi (online)	1 hour
<b>Parthasarathi Bhaumik</b>	Invited lecture	Refresher Course on "Comparative Literary Studies: Indian Dimension"	Department of Comparative Indian Language and Literature, Calcutta University (Online)	1 hour
<b>Parthasarathi Bhaumik</b>	Invited Lecture	Special Lecture for Researchers	Department of English Language and Literature, Adamas University, Barasat, West Bengal (Online)	1 hour
<b>Epsita Halder</b>	Speaker "Mourning in the City: Imambaras as the Site of Urban Contestation in Kolkata"	An extended lecture as a part of PG coursework	Department of Sociology, Ambedkar University, Delhi (Online)	09.11.20 2 hours
<b>Epsita Halder</b>	Speaker "Bangla Marsiya in the Age of Globalization"	Karbala Poetry Across the Linguistic Boundaries of South Asia: Kashmiri, Bangla and Saraiki	Ahlubayt Media (Online)	03.01.21 45 mins
<b>Epsita Halder</b>	Speaker "Can there be a Feminist Ethnography of Lament Ritual"	Refresher Course on Literary Studies and the Question of Interdisciplinarity	Department of Comparative Literature, Jadavpur University (Online)	13.01.2021 2+2 hours
<b>Epsita Halder</b>	Speaker "Lamenting Online: New Media and Shi' a Piety in West Bengal"	National level Seminar on Narratives of Faith: Devotional Songs and Poetry of Multicultural Societies of Bengal	(Online) Department of English, Jadavpur University	18.02.21 30 min



### Annual Report 2020-2021

<b>Epsita Halder</b>	Discussant	Discussant of a lecture titled “East Bengal/Bangladesh in the eyes of those who stayed back and who had come by Professor Sayed Ferdaus, Jehangirnagar University, Bangladesh	Centre for Studies on Borders and Movements, Kolkata (Online)	18.10.21 15 minutes of discussion after 45 minutes of long presentation.
<b>Debashree Dattaray</b>	Panelist	Indigenous Studies and/in a Pandemic: A Conversation	(Online) Sidho Kanho Birsha University	19.08.20
<b>Debashree Dattaray</b>	Invited talk on “Indigenous Communities and Covid 19: A Case of “Social Distancing”	Indigenous Communities and Covid 19: A Case of “Social Distancing	(Online) Littcrit	20.08.20
<b>Debashree Dattaray</b>	Panelist	Locating Indigeneity and Rarticulating Resilience: Karbi Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	07.09.20
<b>Debashree Dattaray</b>	Discussant	Indigenous Studies Today: Pedagogies and Dislocations	(Online) Centre for Karbi Studies, Diphu	23.09.20
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rarticulating Resilience: Santali Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24.09.20
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rarticulating Resilience: Bodo Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24.09.20
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rarticulating Resilience: Chhara Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24.09.20
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rarticulating Resilience: Theory and Practice with Emerging Scholars Today	(Online) Centre for Canadian Studies,	29.09.20

**Annual Report 2020-2021**

			Jadavpur University	
<b>Debashree Dattaray</b>	Invited Talk on “Indigenous Studies and Research Methodology in the Context of Karbi Studies”	One Month Orientation Programme on Karbi Studies (Online)	(Online) Centre for Karbi Studies, Diphu	31.10.20
<b>Debashree Dattaray</b>	Invited Plenary Talk on “Archiving ‘Community’s Voices’ in Karbi Anglong: Collective Memory and Digital Apprehensions”	International Conference (Online) on "Confronting the 'Global', Exploring the 'Local': Digital Apprehensions of Poetics and Indian Literature(s)" [Ministry of Education, SPARC Supported]	Department of English, Jamia Millia Islamia, and Michigan State University, USA	21.12.20 & 22.12.20
<b>Debashree Dattaray</b>	Invited Talk on “Indigeneity and Covid: An Interface” as Resource Person	Refresher Course on “Literary Studies and the Question of Interdisciplinarity”	Department of Comparative Literature & UGC-HRDC, Jadavpur University	7.01.21-21.01.21
<b>Debashree Dattaray</b>	Invited Talk on “Indigenizing Literature” as Resource Person	Refresher Course on “Literary Studies and the Question of Interdisciplinarity”	Department of Comparative Literature & UGC-HRDC, Jadavpur University	7.01.21-21.01.21
<b>Debashree Dattaray</b>	Invited Talk on “Indigenous Knowledge and Sustainability: A Story from the Okanagan”	CSGCM Lecture Series on “Many Facets of Sustainability”	(Online) Centre for Studies in Gender, Culture and Media, West Bengal State University	21.01.21
<b>Debashree Dattaray</b>	Discussant for Keynote Address by Jeannette Armstrong on “A Syilx Perspective: Indigeneity and Resilience in These Times”	International Conference (online) on “Global Education and the Humanities in the time of Covid 19: Challenges and Perspectives beyond Borders”	(Online) Centre for Canadian Studies, Jadavpur University	09.02.21 & 10.02.21

**Annual Report 2020-2021**

<b>Debashree Dattaray</b>	Invited Talk on “Indigenous Literatures Today: A Story of Resilience” as Resource Person	Refresher Course on “Protean Wor (l)ds: Literary And Cultural Metamorphosis”	Department of English & UGC-HRDC, Jadavpur University	13.03.21
---------------------------	--	--	---	----------

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Kunal Chattopadhyay</b>	“Arab Science and Medicine”	Arabic Society Culture and Science	RKSM, Vivekananda Vidyabhaban	10.06.20
<b>Krishnendu Pal</b>	“To Talk about Yourself and your own: Reading Ma-Nee Chacaby’s A Two-Spirit Journey”	Locating Indigeneity and Rearticulating Resistance	Centre for Canadian Studies, Jadavpur University	29.10.20
<b>Krishnendu Pal</b>	“Giving disease a face: The Curious Case of Cholera in India and Canada”	Global Education and Humanities in the time of Covid 19: Challenges and Perspectives beyond Borders	Centre for Canadian Studies, Jadavpur University	10.02.21
<b>Krishnendu Pal</b>	“Of unearthing voices and Writing History: Exploring the Oeuvre of Kalyani Dutta”	6 <sup>th</sup> Oral History Association of India Conference on Crisis, Community, and Oral History	Oral History Association of India (Online)	07.03.21
<b>Nazneen Hoque</b>	“Dislocation and Home Space: A Reading of Shaun Tan’s The Arrival and Jerome Ruillier’s The Strange in the light of Interdisciplinary Studies”	Interdisciplinarity and Comparative Literature Theory, Relevance and Praxis	(Online) Research Scholars’ Forum, Department of Comparative Literature, Jadavpur University	14.10.20 & 15.10.20
<b>Riti Agarwala</b>	“A Gardener in the Wasteland: The Graphic Novel as a Discursive Space”	Interdisciplinarity and Comparative Literature: Theory, Relevance and Praxis	(Online) Research Scholars’ Forum, Department of Comparative Literature, Jadavpur University	14.10.20 & 15.10.20

**Annual Report 2020-2021**

<b>Debasmita Sarkar</b>	“Manindra Gupter Atmojibonite Chobi O Lekhar Kothopokothon”	lecture on Manindra Gupta’s Okkhoy Malberi Organized by Sahajpath: An Academic Forum in collaboration with Tokyo University of Foreign Studies and School of Languages and Linguistics, Jadavpur University	(Online) Sahajpath: An Academic Forum in collaboration with Tokyo University of Foreign Studies and School of Languages and Linguistics, Jadavpur University,	04.09.20
<b>Debasmita Sarkar</b>	“Baital and Vampire: Problems in Representations”	Interdisciplinarity and Comparative Literature: Theory, Relevance and Praxis	(Online) Research Scholars’ Forum, Department of Comparative Literature, Jadavpur University	14.10.20 & 15.10.20
<b>Sagar Baidya</b>	Appropriation of Anime-Manga Art Aesthetics in India: A Study of Cross-cultural Influence	Interdisciplinarity and Comparative Literature: Theory, Relevance and Praxis	(Online) Research Scholars’ Forum, Department of Comparative Literature, Jadavpur University	14.10.20 & 15.10.20

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Nazneen Hoque</b>	Global Education and the Humanities in the time of Covid 19: Challenges and Perspectives beyond Borders	CCS, JU Conference	09.02.21 & 10.02.21
<b>Nazneen Hoque</b>	Persian-Arabic Poetics in the Context of Indian Poetics: Readings, Recoveries and Re-orientations in South Asian Literatures	CLAI International Conference, Kolkata	15.03.21-17.03.21
<b>Riti Agarwala</b>	Appreciating, Reading and Making Comics	G-Meet	7.01.20-01.02.20
<b>Riti Agarwala</b>	Locating Indigeneity and Rearticulating Resilience: Santali Studies Today	Jadavpur University, Department of	16.09.20

## Annual Report 2020-2021

		Comparative Literature	
<b>Riti Agarwala</b>	Marketing, Adaptation and Shakespeare	Adamas University	29.05.20
<b>Riti Agarwala</b>	An Inheritance of Imaginations (Shaharzade and Abanindranath: Reimagining the Arabian Nights)	DAG Museum	21.08.20

**6. Major Achievements of the Department during the year:**

**C. Awards received by Research Scholars/students:**

Name of the Award/ Honour	Awarding Institute	Place
ERASMUS+MOBILITY PROGRAMME (From February to July 2020)	Babes-Bolyai University	Romania

**D. Any Other Major Achievements:**

- Riti Agarwala published “Hayao Miyazaki’s ‘nature-writing’ in the form of ‘collective storytelling’ in Middle Flight Journal (Special Volume on Health, Environment and Humanity in Literature), Nov. 2020 Issue. (ISSN 2319-7684).
- Sarbajit Ghosh published a Bangla Translation of Susan Sontag’s Regarding the Pain of Others from Nokta publications, Bangladesh.

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
30	MA/ M.Phil in Comparative Literature	Departments of Comparative Literature, Culture Studies, English, Gender Studies, South Asian Studies.	University of Cambridge, University of Illinois, University of Utrecht, University of Delhi, University of Hyderabad, WWE Muenster and others.

**B. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
x	3

## Annual Report 2020-2021

### ECONOMICS

Phone: 033-2414-6328

033-2457-2226

H.O.D: Prof. Malabika Roy

Prof. Sushil Haldar (Since 3.8.2020)

E-mail: sushil.haldar@gmail.com

#### Notable Achievements of the Department:

- Faculty members had received Fulbright Fellow, Economic Growth Center, Yale University, New Haven;
- Reid Hall Resident Scholar, Columbia University, Paris Campus;
- Simon Naidel Prize for Best Comprehensive Examination, American University;
- Ford Foundation Post-Doctoral Fellowship in Economics,
- International Trade Research Award of the Export Import Bank of India for the best Ph.D. Dissertation in International Economics;
- Research Medal Winner, Global Development Network, Washington D.C for the best research on Globalization, Inequality and Poverty;
- Mahalanobis Memorial Medal Award of The Indian Econometric Society; Shiksha Ratna Award for Outstanding Teacher, Government of West Bengal,
- Breakthrough Paradigm Award. and are authors/coauthors of different IPCC reports.

#### Planning & Development Unit at Jadavpur University:

Planning & Development Unit (PDU) at Jadavpur University was established in 1996 from an endowment grant of the Planning Commission (Now NITI Aayog), Government of India and housed in the Department of Economics, Jadavpur University. The purpose of the endowment grant was to promote studies and research on planning and development. The PDU has undertaken various empirical studies with financial support from NABARD, European Union and Centre for Research on the Epidemiology of Disasters (CRED), Louvain (UCL), Brussels, Belgium.

#### 2. Academic Activities:

##### A. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BA	3	1 <sup>st</sup> year	82
		2 <sup>nd</sup> year	
MA	2		82
M.Phil	2		4
Ph.D	4+1		9

#### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
12+1(Lien)	04	04	21

## Annual Report 2020-2021

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

International Trade  
Finance  
Public Policy and Regional Development  
Resource Economics and Environment

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
‘Special Economic Zones: A force for good to Reduce Inequality?’ (Grant Amount for JU: EUR 181400)	Departmental	<b>Saikat Sinha Roy</b>	Riksbankens Jubileumsfond (Bank of Sweden Tercentenary Foundation)	January 2020- December 2023
‘Technological Catch-up, SMEs and Trade: Experiences from BIMSTEC Countries’,	Individual	<b>Saikat Sinha Roy</b>	Research and Information System for Developing Countries (RIS), New Delhi	December 2020 – December 2021
Subaltern Culture and Happiness in Tribal Communities of West Bengal	Individual	<b>Bidisha Chakraborty</b>	Planning and Development Unit, Department of Economics, Jadavpur University	18 months
Trends, Patterns and Regional Variations of Covid-19 Pandemic in India at Sub-National Level: Analysis based on Spatial Econometric Method	Individual	<b>Sushil Kr. Haldar</b>	Planning and Development Unit, Department of Economics, Jadavpur University	6 months
<b>Impact of Mental Disorder of Children on Maternal Labor Supply and Earnings</b>	Individual	<b>Arpita Ghose</b>	UGC, Centre for Advanced studies, Economics	December 2019 – March 2021
Impact of the Restructuring and Rationalisation of Centrally Sponsored Schemes on the Adequacy, Effectiveness and Efficiency of Public Expenditures on Education and Health	Individual	<b>Dr. Vikas Dixit</b>	Planning and Development Unit (NITI Aayog), Department of Economics, Jadavpur University	Initially for 10 months (extended by one more year due to COVID) till 31 March, 2021

## Annual Report 2020-2021

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department.
1	43

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

#### International Journals:

1. Vivekananda Mukherjee and Amrita Kamalini Bhattacharyya: **‘Market Competition, Relocation and Lobbying’**, Economics and Politics, 33(2), 343 – 356, 2021.
2. Vivekananda Mukherjee, Saheli Bose and Malabika Roy: **‘Political Reservation and Allocation of Household Public Goods for Backward Communities’**, Journal of Rural Development, 39(4), 449-466, 2020.
3. Saumyabrata Chakrabarti and Vivekananda Mukherjee: **‘Birth of Census Towns in India: An Economic Analysis’**, South Asian Journal of Macroeconomics and Public Finance, 9 (2), 139 – 166, 2020.
4. Paramita Mukherjee and Vivekananda Mukherjee: **‘Assessing the Scope of Gold Refineries in India: Evidence from Survey Data’**, Resources Policy, 69, 2020.
5. Vivekananda Mukherjee, Siddhartha Mitra and Swapendu Banerjee: **‘Corruption, Pricing of Public Services and Entrepreneurship in Economies with Leakages’**, Journal of Institutional and Theoretical Economics, 176(4), 595 - 619, 2020.
6. Saheli Bose, Vivekananda Mukherjee, and Malabika Roy: **‘Allocation of Village Public Goods at Community Level: Does Political Reservation Help?’**, Constitutional Political Economy, 31(3), 363 – 393, 2020.
7. Sanjana Chakraborty and Vivekananda Mukherjee: **‘Revisiting Economic Costs of Arsenicosis: A PSM Approach’**, (with), Ecology, Economy and Society: the INSEE Journal, 3(2), 33 – 58, 2020.
8. Simontini Das, Trisha Bhattacharya and Rilina Basu Banerjee, **‘Financial Innovation and Bank’s Performance: An empirical analysis of Indian Commercial Banks’**, International Journal of Business Innovation and Research, DOI: 10.1504/IJBIR.2021.10039744, 2021.
9. Tanmoyee Banerjee Chaterjee, Malabika Roy **“Financial literacy : an intra-household case study from West Bengal , India”**, Studies in Macroeconomics , Vol,8 (2) pp.170-193, 13 May, 2020
10. Tanmoyee Banerjee Chaterjee, Malabika Roy, Ajitava Raychaudhuri (2021) “Financial inclusiveness and mobilization of household savings in rural India: are they related?” Journal of Quantitative Economics, Vol 19(2), PP. 223-249, 19 February, 2021
11. Antara Bhattacharyya and Sushil Kr. Hadar (2020). "Does U Feminisation Work in Female Labour Force Participation Rate? India: A Case Study," The Indian Journal of Labour Economics, Springer;The Indian Society of Labour Economics (ISLE), vol. 63(1), pages 143-160, March.
12. Antara Bhattacharyya and Sushil Kr. Haldar (2020). "Socio-economic development and child sex ratio in India: revisiting the debate using spatial panel data regression", Journal of Social and Economic Development, Springer; Institute for Social and Economic Change, vol. 22(2), pages 305-327, December.
13. Sulekha Hembram and Sushil Kr. Haldar (2020). "Is India experiencing health convergence? An empirical analysis", Economic Change and Restructuring, Springer, vol. 53(4), pages 591-618, November.
14. Sulekha Hembram, Sohini Mukherjee and Sushil Kr. Haldar (2020). "Regional convergence of social and economic development in the districts of West Bengal, India: Do clubs exist? Does space matter?"



## Annual Report 2020-2021

- An empirical analysis using DLHS I–IV and NFHS IV data", Journal of Social and Economic Development, Springer; Institute for Social and Economic Change, vol. 22(1), pages 58-90, June.
15. Sushil Kr. Haldar, Sulekha Hembram & Suraj Das (2021): Multidimensional Human Deprivation in India: Does Club Convergence Exist? *Millennial Asia*, February, 2021 doi. 10.1177/0976399620981008
  16. Antara Bhattacharyya, Sushil Kr. Haldar and Swapnendu Banerjee (2021): “**Determinants of Crime Against Women in India: A Spatial Panel Data Regression Analysis**”; *Millennial Asia* [Association of Asia Scholars]; 23217081(Online), 09763996(Print); DOI: 10.1177/09763996211003379; journals.sagepub.com/home/mla
  17. Rajat Acharyya and Shrimoyee Ganguly (2021): “**Emigration, Tax on Remittances and Export Quality**”, *South Asian Journal of Macroeconomics and Public Finance*, 2021. Online First. DOI: 10.1177/2277978720980236.
  18. Rajat Acharyya, Sugata Marjit and Shrimoyee Ganguly (2020): “**Minimum wage, trade and unemployment in general equilibrium**”. *International Journal of Economic Theory* (Special Issue in honour of Ronald W. Jones), 2020. DOI: 10.1111/ijet.12264
  19. Siddhartha Mitra, Sangeeta Shroff and Vanshika Agarwal, “**The male-female ratio of suicide rates as a measure of gender bias**”, in *A Socio-Economic and Demographic Analysis of Mental Wellbeing: The Indian Case*, edited by Antonio R. Andres and Siddhartha Mitra, Nova Science Publishers, ISBN: 978-1-53619-023-6, 2021.
  20. Saikat Sinha Roy and Suman Das.(2021): '**Predicting Regime Switching in BRICS Currency Volatility: A Markov Switching Autoregressive Approach**', *Decision - Official Journal of Indian Institute of Management Calcutta*, <https://doi.org/10.1007/s40622-021-00275-9> (Online) March 2021.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

1. Sushil Kr. Haldar, Sulekha Hembram (2020): “Health Progress in India with Respect to Millennium Development Goals: Are Health Targets of SDGs Achievable? An Empirical Study at Sub-National Level”, in *Sustainable Development Goals* edited by Hazra, S. and A. Bhukta. Springer, July
2. Sushil Kr. Haldar (2020): “Construction of Different Types of Indices in Social Science Research: Some Numerical Examples” in *Research Methodology for Social Sciences* (edited by Rajat Acharyya and Nandan Bhattacharyya); Link: <https://www.routledge.com/Research-Methodology-for-Social-Sciences/Acharyya-Bhattacharyya/p/book/9780367409845>
3. Arpita Ghose (2021): "Measurement of Efficiency Loss in Indian Agricultural sector due to COVID-19: Evidence from Rice Production" in Bhattacharyya, R, Ghosh Dastidar, A and Sikdar, S (Eds) **Corona Pandemic, India and the World: Economic and Social Policy Perspective**, (coauthored with D. Pal and C. Chakraborty), Routledge, Taylor A Francis Croup, 2021
4. Arpita Ghose. (2021): “Scope of Mitigating Recession in Manufacturing Output through Productivity Growth: Evidence using Nonparametric Data Envelopment Analysis and firm level data from Indian Textile Industry”; (coauthored with Sanchita De) in M.K.Pal (Eds) **Productivity Growth in the Manufacturing Sector: Mitigating Global Recession**, Emerald Publishing, 2021.
5. Piyali Dasgupta, Bidisha Chakraborty and Siddhartha Mitra(2020): “Interaction among Socioeconomic, Institutional, and Genetic Correlates of Adult Mental Health: Evidence from a Representative Sample from Urban Kolkata, India” in *A Socio-Economic and Demographic Analysis of*

## Annual Report 2020-2021

Mental Wellbeing: The Indian Case edited by **Antonio Rodríguez Andrés** and **Siddhartha Mitra** ISBN: ISBN: 978-1-53619-023-6; Publication Date: 11 December, 2020. Nova Publishers. **Series:** Psychology Research Progress; Chapter 1

6. Siddhartha Mitra, Sangeeta Shroff and Vanshika Agarwal, “The male-female ratio of suicide rates as a measure of gender bias”, in A Socio-Economic and Demographic Analysis of Mental Wellbeing: The Indian Case, edited by Antonio R. Andres and Siddhartha Mitra, Nova Science Publishers, ISBN: 978-1-53619-023-6, 2021.
7. Theresa Stahlke, Shreya Some, Vivekananda Mukherjee and Dirk Rubbelke: ‘Co-benefits of CDM’s renewable energy projects in India and their contribution to the SDGs’ (with) in W. L. Filho, J. M. Luetz and D. Y. Ayal (ed.) Handbook of Climate Change Management, Springer, 2021.

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Bidisha Chakraborty</b>	<b>Joydeep Bhattacharya</b>	Economics Department, Iowa State University	Jointly writing a paper	1 year
<b>Bidisha Chakraborty</b>	<b>Pan Liu</b>	Business School, Beijing Normal University	Jointly writing a paper	1 year
<b>Dr. Simontini Das</b>	<b>Dr. Amrita Chatterjee</b>	<b>Madras School of Economics</b>	<b>Article writing, minor survey</b>	<b>1 year (continuing)</b>
<b>Vivekananda Mukherjee</b>	<b>Peter Letmathe</b>	RWTH, University of Aachen, Germany	Research	1 Year
<b>Vivekananda Mukherjee</b>	<b>Dyuti Banerjee</b>	Monash University, Australia	Research	1 Year
<b>Vivekananda Mukherjee</b>	<b>Shyama Ramani, Amrita Kamalini Bhattacharya</b>	UNU, Maastricht and IMT, Gaziabad	Research	1 Year
<b>Vivekananda Mukherjee</b>	<b>Tilak Sanyal</b>	Shibpur Dinabandhu College	Research	1 year
<b>Saikat Sinha Roy</b>	<b>Holger Gorg, Ari Kokko, Aradhna Aggarwal, and others</b>	Kiel Institute of World Economy, Germany; Copenhagen Business School, Denmark; University of Ghana, Accra, Ghana; and National Center for Socio-economic Information and Forecast, Ha Noi, Vietnam	<b>Research Collaboration</b>	<b>January 2020 – December 2023</b>
<b>Saikat Sinha Roy</b>	<b>Sujoy Ghosh</b>	Centre for Computational	<b>Research Collaboration</b>	<b>June 2020 – March 2021</b>

**Annual Report 2020-2021**

		Biology and Program in Cardiovascular and Metabolic Disorders, Duke-NUS Medical School, Singapore		
<b>Saikat Sinha Roy</b>	Aniruddha Bagchi	Formerly of SIDBI, Government of India.	Research Collaboration	June 2020 – March 2021

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
“Impact of COVID 19: Challenges and Policy Options”	<b>Arpita Ghose</b>	NA	Kolkata	5 – 6 March, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Sushil Kr. Haldar</b>	Resource Person	Refreshers Course in Economics[19 November-2 December, 2020] organized by the Economics Department, Mumbai University	Mumbai University, Mumbai	1.5 Hours [21 November, 2020]
<b>Sushil Kr. Haldar</b>	Resource Person	First Faculty Induction Programme, organized by HRDC, J.U[21.12.2020 to 28 January, 2021]	JU, Salt Lake Campus. Kolkata	1.5 Hours
<b>Arpita Ghose</b>	Delivered Invited Lectures	41 <sup>st</sup> Annual Conference of Bengal Economic Association	Kolkata	30 Minutes, on 26 March, 2021
<b>Simontini Das</b>	Resource Person	“Econometric analysis using STATA”, organized by APC and	Kolkata (online)	4 hours

**Annual Report 2020-2021**

		PC Mohalanobish College		
<b>Vivekananda Mukherjee</b>	Session Chaired	NIPFP-JNU Conference on Economic Theory and Policy	Online	1.30 hrs
<b>Vivekananda Mukherjee</b>	Lecture Delivered	RKM Vidyamandir, Belur	Online	1.30 hrs.
<b>Saikat Sinha Roy</b>	Delivered the Memorial Oration 2020 on “Constraints to Digitalisation of MSMEs in India: An Exploration”	Professor K. K. Subrahmanian Memorial Lecture 2020 (Online)	C. Achutha Menon Study and Research Centre, Kerala Institute of Local Administration, Thrissur, Kerala & COSTFORD, Kerala	16 October, 2020
<b>Saikat Sinha Roy</b>	Delivered a Lecture on “The impact of COVID on Indian economy: New dimensions and the way forward”	Webinar Series on Thoughts and Reflections in the Time of COVID 19 Pandemic: Science, Economy, Polity and Culture	IQAC, Bethune College, Kolkata	17-19 June, 2020
<b>Saikat Sinha Roy</b>	Delivered a Lecture on COVID 19 Pandemic, Digital Divide and Higher Education	Webinar in Bengali on COVID 19 Pandemic, and Higher Education	IQAC, Sadhan Chandra Mahavidyalay, West Bengal,	6-8 July, 2020
<b>Saikat Sinha Roy</b>	Delivered a Lecture on “Economic Impact of Lockdown in the Indian Economy: A critical analysis of the measures taken by Government of India”	State Level Webinar	Departments of Economics and Commerce, Bhairav Ganguly College, Kolkata	23 July, 2020
<b>Saikat Sinha Roy</b>	Delivered a Lecture on “COVID 19 Pandemic: What are the priorities for the economy?”	Two-day International Webinar on Economic Predicament and Panacea for COVID 19	Vidyasagar Metropolitan College, Kolkata, & Netajai Nagar College for Women, Kolkata	28-29 July, 2020.
<b>Saikat Sinha Roy</b>	Delivered a Lecture on	Webinar on Where are the Employment	Department of Economics,	01 August, 2021

**Annual Report 2020-2021**

	'Identifying the employment opportunities post COVID 19'	Opportunities Post COVID 19?	Lady Brabourne College, Kolkata	
<b>Saikat Sinha Roy</b>	Delivered a Special Lecture on "Economic framework and responses to Covid -19 and its aftermath"	Web-Lecture Series on Interrogating Emerging Post-Pandemic Scenarios in Light of COVID 19	IQAC, Kazi Nazrul Islam Mahavidyalaya, Churulia, West Bengal	07-12 September, 2020.
<b>Saikat Sinha Roy</b>	Delivered a Special Lecture at the Technical Session I on "In search of employment during post COVID 19"	International Webinar on Employment Scenario in the Developing World in the Post-COVID Era with special reference to India	IQAC, Prafulla Chandra College, Kolkata	18 September , 2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Sanmitra Ghosh</b>	Experience Learning and the Detection of Deception	2021 Web Conference on Economics Theory and Policy	WEB (organized by NIPFP, New Delhi)	30-31 March, 2021
<b>Bidisha Chakraborty</b>	Subaltern Culture and Happiness in Tribal Communities of West Bengal	Presentation of ongoing projects, sponsored by the Planning and Development Unit, JU	Webinar	2 October, 2020, during 4.00pm - 4.30pm (attended the entire program)
<b>Vivekananda Mukherjee</b>	Controlling Extortion and Collusion: Moral Standard and the Strategies beyond Enforcement	NIPFP-JNU Conference on Economic Theory and Policy	Online	0.30 hrs.
<b>Saikat Sinha Roy</b>	"Does WTO improve market access? May be, but varying across countries" (invited paper)	International Web Conference on Trade and Development	Indira Gandhi Institute of Development Research (IGIDR), Mumbai,	17-19 December, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
---------------------------------	---	--------------	-----------------

## Annual Report 2020-2021

<b>Bidisha Chakraborty</b> (was discussant of a paper by Priyanka Arora)	Research Scholars' Workshop at University of Calcutta	Webinar	26 March, 2021 from 2:45 p.m. to 3:30 p.m. (attended the entire program)
---	---	---------	--

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
02	MA(Econ) from JU	MSQ	ISI Kolkata
02	MA(Econ) from JU	PhD	IIT Kanpur
02	BA(Econ) from JU	MA(Dev. Studies)	IGIDR Mumbai
01	BA(Econ) from JU	MBA	IIM Indore

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	10(out of 43 PhD students)
SET	5(out of 43 PhD students)
GATE	2 [for this current Year]
CAT	5 [for this Current Year]
GRE	04(for this Current Year)
State Government Services	04 (for this current year) out of 43 PhD students
Any Other [Private Job]	[Out of PG-2 Final year students] City Bank=03 Swiss Re=01 Kantar IMRB=02 Ganit Analytics=04 HSBC=04

## EDUCATION

Phone: 033-2457-2882

H.O.D. Prof. Muktipada Sinha

E-mail: hod.education@jadavpuruniversity.in

### 1. Vision and Mission of the Department:

#### A. Vision:

Department of Education, Jadavpur University visions to have a sustainable impact on society and its people through systematic discourse of effective knowledge, skills and to promote scientific attitude and humane values among the learners.

#### B. Mission:

- To establish the department as a centre of excellence for teaching-learning and research.

## Annual Report 2020-2021

- To provide students exposure to robust and updated knowledge and skills through multidimensional approach.
- To enable trainee-teachers get best-in-class pedagogical competencies and real-time teaching experience in leading schools of the city.
- To develop close collaboration with the society by engaging teachers and students to various outreach programmes and disseminate knowledge, social skills and positive relationships.

### 2. Academic Activities:

#### A. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Master of Arts in Education	2 years	1 <sup>st</sup> year	66
		2 <sup>nd</sup> year	65
Bachelor of Education	2 years	1 <sup>st</sup> year	98
		2 <sup>nd</sup> year	96
M. Phil in Education	2 years	1 <sup>st</sup> year	20
		2 <sup>nd</sup> year	19
Ph.D. in Education	-	1 <sup>st</sup> year	20

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1	2	10	12

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

- Mental health and Life skills
- Wellbeing and Happiness
- Competency Achievement
- Children with Special Needs
- Inclusive Education
- Cognitive Psychology

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
2	20

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

1. Sinha, M., Mukhopadhyay, S., Panda, B. K. (2020). Mindfulness: a traditional Buddhist wisdom to cope with the COVID-19 situation. *Indian Journal of Traditional Knowledge*, CSIR-NISCAIR, 19(Suppl), December, s164-s172.
2. Arockiasamy, M. S. Seelvaraj, Panda, B. K., Sinha, M. (2020). Emotional intelligence in children of Christian missionary school at Kolkata. *MIER Journal of Educational Studies, Trends and Practices*, 10(2), 267-277, ISSN: 0976-8203.

## Annual Report 2020-2021

3. Sinha, M., Panda, B. K., Paria, M. (2020). Childhood adversities and self-esteem: a study on girls of residential schools in Kolkata. *Journal of the Social Sciences*, 48(3), 2104-2113, E-ISSN: 0975-8935 P-ISSN: 0253-1097.
4. Panda, B. K., Sinha, M. (2020). Happiness Among Primary School Teachers: A Bengal Perspective. *Studies in Indian Place Names*, 40(71), 3221-3237, ISSN: 2394-3114.
5. Baskey, S. & Nanda, B. (2020). The causes of school dropout: a challenging issue in the education of schedule tribe students in Hoogly district. *RENOVA*, 6(1), 143-150.
6. Mandal, P. & Nanda, B. (2020). Threment of aggressive behaviour of intellectually challenged learner by using primary and social reinforcers. *RENOVA*, 6(1), 157-162.
7. Ghorai, N. D., Khan, S. & Mohakud, L. L. (2021). Influence of Family Backgrounds on Moral Values in Higher Secondary Students. *East African Scholars Journal of Education, Humanities and Literature*, 4(2), 41-47.

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**A. Books/Monographs Published:**

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Sharif Khan &amp; Dr. Lalit Lalitav Mohakud</b>	Primary school children and cognitive equivalence: development, assessment and education	Divya Publication	978-81-949732-0-1	2021

**B. Books/Monographs Edited:**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Dr. Lalit Lalitav Mohakud &amp; Ananya Mukhopadhyay</b>	Pedagogy of peace education: theories and practices	Divya Publication	978-81-949732-1-8	2021

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Mental health & wellbeing in the COVID-19 scenario	<b>Dr. Lalit Lalitav Mohakud</b>	No	Online	29-30 June, 2020
Technology-Mediated Learning: Context, Problems and Prospects	<b>Dr. Lalit Lalitav Mohakud</b>	No	Online	9 August, 2020
The first global e-conference on education - 2020	<b>Dr. Lalit Lalitav Mohakud</b>	No	Online	23-24 August, 2020



### Annual Report 2020-2021

Promoting wellbeing and managing stress in educational institutions	<b>Dr. Muktipada Sinha</b>	No	Online	31 August, 2020
Viruses versus Science	<b>Dr. Muktipada Sinha</b>	No	Online	02 February, 2021
Seminar on International Mother Language Day	<b>Dr. Muktipada Sinha</b>	No	Online	21 February, 2021

**D. Orientation Courses/Refresher Courses Organized:  
(Name of the Teachers, Title of the Course, if any, Duration, Place)**

Title of the Course	Name of the Coordinator(s)	Place	Date
1 <sup>st</sup> Faculty Induction Programme	<b>Dr. Muktipada Sinha &amp; Dr. Nandan Bhattacharya</b>	UGC-HRDC, Jadavpur University	21-28 January, 2021
2 <sup>nd</sup> Faculty Induction Programme	<b>Dr. Muktipada Sinha &amp; Dr. Nandan Bhattacharya</b>	UGC-HRDC, Jadavpur University	1 February -8 March, 2021
3 <sup>rd</sup> Faculty Induction Programme	<b>Dr. Muktipada Sinha &amp; Dr. Nandan Bhattacharya</b>	UGC-HRDC, Jadavpur University	22 February-27 March, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Dr. Muktipada Sinha</b>	Invited Lecture & Session Chaired	The first global e-conference on education - 2020	Through Online mode	23-24 August, 2020
<b>Dr. Muktipada Sinha</b>	6 Invited Lectures	1 <sup>st</sup> Faculty Induction Programme	UHC-HRDC, JU	21 December, 2020-28 January, 2021
<b>Dr. Muktipada Sinha</b>	6 Invited Lectures	2 <sup>nd</sup> Faculty Induction Programme	UHC-HRDC, JU	1 February-8 March, 2021
<b>Dr. Muktipada Sinha</b>	6 Invited Lectures	3 <sup>rd</sup> Faculty Induction Programme	UHC-HRDC, JU	22 February -27 March, 2021
<b>Prof. Bishnupada Nanda</b>	4 Invited Lectures	1 <sup>st</sup> Faculty Induction Programme	UHC-HRDC, JU	21 December, 2020-28 January, 2021
<b>Prof. Bishnupada Nanda</b>	4 Invited Lectures	2 <sup>nd</sup> Faculty Induction Programme	UHC-HRDC, JU	01 February-08 March, 2021

**Annual Report 2020-2021**

<b>Prof. Bishnupada Nanda</b>	4 Invited Lectures	3 <sup>rd</sup> Faculty Induction Programme	UHC- HRDC, JU	22 February-27 March, 2021
<b>Dr. Lalit Lalitav Mohakud</b>	4 Invited Lectures	1 <sup>st</sup> Faculty Induction Programme	UHC- HRDC, JU	21 December, 2020-28 January, 2021
<b>Dr. Lalit Lalitav Mohakud</b>	4 Invited Lectures	2 <sup>nd</sup> Faculty Induction Programme	UHC- HRDC, JU	01 February-08 March, 2021
<b>Dr. Lalit Lalitav Mohakud</b>	4 Invited Lectures	3 <sup>rd</sup> Faculty Induction Programme	UHC- HRDC, JU	22 February-27 March, 2021
<b>Bijoy Krishna Panda (RS)</b>	3 Invited Lectures	1 <sup>st</sup> Faculty Induction Programme	UHC- HRDC, JU	21 December, 2020-28 January, 2021
<b>Bijoy Krishna Panda (RS)</b>	2 Invited Lectures	3 <sup>rd</sup> Faculty Induction Programme	UHC- HRDC, JU	22 February, 2021-27 March, 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Bijoy Krishna Panda (RS)</b>	Practicing mindfulness during COVID-19: an alternative to happy pill.	Mental health & wellbeing in the COVID-19 scenario	Through Online mode	29-30 June, 2020
<b>Bijoy Krishna Panda (RS)</b>	Human Cognition and Blank Slate: Where Do We Stand	The first global e-conference on education - 2020	Through Online mode	22-23 August, 2020
<b>Bijoy Krishna Panda (RS)</b>	Denial and then Acceptance: How Students are Managing Stress in the New Normal	Promoting wellbeing and managing stress in educational institutions	Through Online mode	31 August, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Bijoy Krishna Panda (RS)</b>	7-days National Level Faculty Development Programme on “Paradigm Shift in Teaching-Learning Pedagogy & Scope of Research Methods in Post COVID Era”	Through Online mode	9-15 June, 2020

## Annual Report 2020-2021

<b>Bijoy Krishna Panda (RS)</b>	7-Day International Level Faculty Development Programme on “Methodology of Research in Social Sciences: Latest Innovations”	Through Online mode	25-31 July, 2020
<b>Bijoy Krishna Panda (RS)</b>	29-Days Orientation Programme “2 <sup>nd</sup> Faculty Induction Programme”	UGC-HRDC, JU	1 February- 8 March, 2021
<b>Bijoy Krishna Panda (RS)</b>	Scientific Writing for Journals organized by Springer Nature	Through Online mode	30 July, 2020
<b>Bijoy Krishna Panda (RS)</b>	National Education Policy-2020: Features & Prospects	Through Online mode	2 August, 2020
<b>Bijoy Krishna Panda (RS)</b>	One-day international webinar on “Technology-Mediated Learning: Context, Problems and Prospects”	Through Online mode	9 August, 2020
<b>Bijoy Krishna Panda (RS)</b>	One-day national webinar on “Digital Divide in Higher Education: Consequences and Probable Way-outs”	Through Online mode	16 August, 2020
<b>Bijoy Krishna Panda (RS)</b>	National Education Policy - 2020. Online panel discussion organized by Society for Promotion of Science & Technology in India (SPSTI)	Through Online mode	25-28 August, 2020

### 6. Major Achievements of the Department during the year:

#### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Sanam Sultana	Junior Research Fellowship	UGC	New Delhi
Anita Malik	Junior Research Fellowship	UGC	New Delhi
Chiranjit Mandal	Rajiv Gandhi National Fellowship	UGC	New Delhi
Puja Roy	Rajiv Gandhi National Fellowship	UGC	New Delhi
Ranabrata Majumdar	Rajiv Gandhi National Fellowship	UGC	New Delhi
Mallika Mondal	Rajiv Gandhi National Fellowship	UGC	New Delhi

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
15	B.Ed.	M. Phil	Jadavpur University
4	M.A	M. Phil	Jadavpur University

## Annual Report 2020-2021

9	M. Phil	PhD	Jadavpur University
2	B.Ed.	PhD	Jadavpur University

### B. Qualifying in State/ National/ International Level Examinations

Name of the Examination	No. of students selected/ qualified
NET	16
State Government Services	3

## ENGLISH

Phone: 033-2457-2145/2224

H.O.D : Prof. Nandini Saha

Prof. Rimi Barnali Chatterjee (since 1.8.20)

Prof. Sonia Sahoo (since 26.2.21)

E-mail: hod.english@jadavpuruniversity.in

### 1. Vision and Mission of the Department:

#### A. Vision:

The Department of English, Jadavpur University, founded in 1956, is the only Centre of Advanced Study (CAS) in its discipline, a status awarded to it in 2004 by the University Grants Commission. In its long and distinguished history, it has attracted some of the best scholars and researchers in India. Its chosen field of research for the CAS Programme is 'Textuality and Culture' (second phase: 'Cultural Transactions'), and the work of its members has ranged from the Renaissance to the nineteenth and twentieth centuries, translation, the history of the book, literature and psychoanalysis, subaltern literature and orature, postcolonial literature, media, gender, travel, popular literature, creative writing, and theatre studies, producing in the past five years alone, over 80 academic books and over 200 articles in refereed journals.

#### B. Mission:

The Department provides a hospitable environment for every kind of research. Some new academic fields created by it have had a significant impact on arts and humanities research in India. Among them are the study of textual and print cultures and the history of the book, leading to a path-breaking series of conferences and publications in the field. Meanwhile, the Department continues to maintain its strength in traditional areas of scholarship such as Renaissance Studies, Romantic, Victorian and Modern Literature, and Translation Studies.

The impact of Europe upon India, both in the earliest period of contact and under colonialism, leading to radical transformations in all spheres of material culture and imaginative and intellectual activity,

## Annual Report 2020-2021

has been a major field for CAS and ASIHSS research. The Department is a partner in the Leverhulme Trust International Network Project on Commodities and Culture in the Colonial World with King's College London, New York University, and the University of Technology, Sydney. It has created a Digital Archive of Renaissance Travellers to India with the University of Liverpool. It has also worked on East-West Encounters in the History of the Book in Bengal and on the Idea of the Renaissance across Cultures with the School of Advanced Studies, University of London.

The Centre of Advanced Study (CAS) has sponsored important translation projects as well as research in all its areas of strength, and hosted international conferences, workshops, and lectures. Recent conferences include The Renaissance Man: Reappraisal and Reinvention (2019) and the International Forum on Megacities: Conviviality and its Limits (2020). A Renaissance Resource Centre was set up with the support of the Culture Directorate of the Italian Embassy, New Delhi. The Centre for Studies in Romantic Literature (CSRL), an independent institution, was set up by Professor Malabika Sarkar. An interdisciplinary Centre for Victorian Studies with formal links with the University of Leicester's Victorian Studies Centre was established in 2010.

Members of the Department have initiated and continue to direct a number of Interdisciplinary Schools in the University, such as Women's Studies; Media; Languages; and Cultural Texts and Records. Within the Department, the curriculum is constantly revised and updated, and a wide variety of courses, ranging from 'Graphic Novels' to 'Death in Western Civilization' is offered to both undergraduate and postgraduate students in the semester system.

The Centre of Advanced Study welcomes scholars and researchers from other institutions in India and abroad and has an active Visiting Fellowship programme, enabling intense and productive academic interaction at both individual and institutional levels. Visiting speakers are also regularly hosted. Research scholars find a stimulating and supportive environment, and there are around 3000 applications for 50 places in the undergraduate programme. Entry at all levels is through a demanding entrance examination.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BA (Honours)	3 years 6 semesters	74 current intake	221
MA	2 years 4 semesters	74 current intake	143
M.Phil	2 years	19 per year	40
Ph.D			93 registered + 5 awarded

## Annual Report 2020-2021

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
9	4	5	17

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

The broad field identified for research under Phase I (2004-2009) was Textuality and Culture with the following “thrust areas”:

- Renaissance Studies
- Nineteenth Century Studies
- Twentieth Century Studies
- Translation Studies

**The following areas had additionally been identified as important fields of study:**

- Literature and the Other Arts
- History of the Book
- Theatre Studies
- Literature and Psychoanalysis
- Popular Culture
- Medieval English and European Literature

The major objectives set out under the broad field of Textuality and Culture were the study of the cultural history of texts and the social, physical and material conditions of literary production, as well as the tasks of documentation, resource collection and archive building in all the specified thrust areas, integrating them into a common programme. This would include extension into wider cultural fields and emerging areas such as: study of non-canonical texts, popular literature and paraliterature, translation studies and cultural history, history of book production, publishing and circulation, study of literature in relation to other arts, textual studies and editorial method, inter-departmental and inter-faculty links in film studies, electronic media, women’s studies, cultural history of texts and study of material culture, the social, physical and material conditions of literary production, documentation, resource collection and archive-building.

In Phase II (2010-2015), the specific thrust area was identified as Cultural Transactions. It was understood that the Centre would continue to focus on its areas of strength, but bring them into the frame of the encounters and transactions between cultures that India’s history reflects, resulting from travel, contact, colonization, migration, scientific and technological advances and exchanges, leading to new literary expressions.

This included the study of the cultural history of texts and the social, physical and material conditions of literary production, as well as the tasks of documentation, resource collection and archive building in all the specified thrust areas, integrating them into a common programme. This would include extension into interdisciplinary and emerging areas such as popular literature and paraliterature, translation studies and cultural history, history of book production, publishing and circulation, study

## Annual Report 2020-2021

of literature in relation to other arts, textual studies, editorial method, digital humanities, cultural history of texts, and study of material culture and the circulation of commodities.

**The focus of the CAS III (2015-20) were the following areas:**

1. Translation
2. Shakespeare in Bengal
3. Incipient Modernities -- India and the World
4. Archiving Local Knowledge Systems
5. World Literature to Indian Film

These would extend the earlier focus on transactions between cultures, resulting from travel, contact, colonization, migration, scientific and technological advances and exchanges, leading to new literary expressions.

The study of English literature in India may itself be regarded as one of the products of these cultural transactions that have taken place in our history. It is important for English departments in India to focus attention on the nature of these cultural transactions, and to understand the far-reaching changes brought about by them, not simply in the context of colonization, but over a very long period of cultural contact across the world, and through migration and travel. The cultural production of texts and their distribution and influence depends on a host of factors including technological and social changes brought about by contact with other cultures. Moreover, just as commodities and human beings travel, so do ideas.

### B. Major Research Projects:

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
The Folger Library project on Shakespeare in Bengal in collaboration with the School of Cultural Texts and Records: In 2018 the project entered into collaboration with Folger Shakespeare Library, Washington DC.	Departmental	Prof. Paromita Chakravarti	UGC-CAS and Folger Shakespeare Library, Washington DC.	2018-ongoing
Sustainable Heritage Policy in Kolkata (SHPK) March 2019 – 2020	Departmental	Prof. Abhijit Gupta	Global Challenges Research Fund (UK) in collaboration with University of Liverpool.	March 2019 – 2020
Two Centuries of Indian Print	Departmental (SCTR)	Co-investigator, with the British Library, London	AHRC, UK; Newton Fund	2016-2022

**Annual Report 2020-2021**

Famine Tales of India and Britain	Departmental (SCTR, JUP)	Co-investigator with Ayesha Mukherjee, University of Exeter	AHRC, UK	2019-2021
Narratives of Faith: Devotional Songs and Poetry in the Eastern Regions of India	Departmental	Dr. Rafat Ali and Prof. Sonia Sahoo	RUSA 2.0	2019-2021
Bodies of Difference: Pedagogies of the Marginal in the Global South	Departmental	Prof. Paromita Chakravarti and Dr. Nilanjana Deb	RUSA 2.0	2019-2021
Literary Ecology in Nineteenth Century Bengal	Department of English and Centre for Victorian Studies, JU	Dr. Saswati Halder and Dr. Sutanuka Ghosh	RUSA 2.0	2019-2021
Tagore in English: Essays of Decolonization	Departmental	Prof. Manojit Mandal	RUSA 2.0	2019-2021
‘Shabdakalpa’: a Computerized Historical Dictionary of the Bengali Language	Individual	Emeritus Prof. Sukanta Chaudhuri (SCTR)	RUSA 2.0	2019-in progress
UNICEF Youth Radio Reporters	Individual	Prof. Nilanjana Gupta (School of Media, Communications and Culture)	UNICEF	
Digital Interventions	Individual	Prof. Nilanjana Gupta (School of Media, Communications and Culture)	RUSA 2.0	2019-2021
Transcultural Readings: The Bengal Italy Encounter in the 20th Century	Individual	Prof. Paromita Chakravarti	Sapienza University Rome through the Bando Accordi Internazionale	2017-in progress



**Annual Report 2020-2021**

Ananyo -- Mobilising Single Women in West Bengal	Individual	Prof. Paromita Chakravarti	American Jewish World Service	
'Rabijibani (Life of Rabindranath Tagore) in English	Individual	Prof. Manojit Mandal, Centre for Studies in Cultural Diversity and Wellbeing, JU	RUSA 2.0	2019-2021
Cultural Diversity and Status of Mental Health at Jadavpur University	Individual	Prof. Manojit Mandal, Centre for Studies in Cultural Diversity and Wellbeing, JU		2019 –in progress
“The First World War and Bengali Self-Representation”	Individual	Dr. Abhishek Sarkar	RUSA 2.0 (MHRD-Govt. of India)	2019-2021
Suryakant Tripathi “Nirala” and the Chhayavad School of Modern Hindi Poetry,	Individual	Dr. Ramit Samaddar	JU Research Grant Committee, Jadavpur University	ongoing
Jibanananda Papers	Individual	Dr. Doyeeta Majumder (SCTR)		2019-in progress

**C. Doctoral Research Activities:**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
5	93

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)  
(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)**

**Prof. Prodosh Bhattacharya**

‘Bestseller Science: Three Novels of Marie Corelli’ in Essays and Studies XXXII (Jadavpur University, 2017), pp. 100-122. Printed in 2020-21.

## Annual Report 2020-2021

### **Prof. Nilanjana Gupta**

"Geographies of Knowledge: Learning from the Other," Essays & Studies XXXIV, Jadavpur University.

### **Prof. Santanu Biswas**

“ল্যাক্স কীভাবে পড়বেন ও প্রয়োগ করতে শিখবেন” (Reading and Learning to Apply Lacan), আলোচনাচক্র, ৩৪বর্ষ, ২য়সংখ্যা, সংকলন ৪৯, চিরঞ্জীব শূর (সম্পাদিত), কলকাতা, অগাস্ট ২০২০, ২০১-২৫। ISSN 2231 3990.

### **Prof. Sonia Sahoo**

‘Cross-border Turk: The Travels of Dean Mahomet’, in Jadavpur University Essays and Studies XXXIV, 2020, pp. 188-204.

### **Prof. Manojit Mandal**

‘Edge of Aging: Shakespeare and Endless Empire’, in Teresian Journal of English Studies, a peer reviewed quarterly journal published from St. Teresa’s College (Autonomous), Ernakulam, Kerala, India; ISSN: 09756302, December 2020.

### **Dr. Nilanjana Deb**

“Conscientization in the Indian Classroom: An Experiment in the Critical Learning of Postcolonial Literature” in the Cambridge Journal of Postcolonial Literary Inquiry 7.2, pp. 247-257, September 2020.

### **Dr. Kaustav Bakshi**

Review of Satyarth Nayek, Sridevi: The Eternal Screen Goddess (New Delhi: Penguin, 2019) in South Asian History and Culture (Taylor & Francis: 20 June 2020), <https://doi.org/10.1080/19472498.2020.1783964> UGC CARE link: <https://mjl.clarivate.com/search-results>.

### **Dr. Abhishek Sarkar**

“Origins of Fingerprint Classification in Bengal,” TheSpace.ink, 25 January 2021. <https://thespace.ink/potpourri/culture-history-heritage/fingerprint/>.

“Darogar Daptar: The Bengali Detective in His Own Words,” TheSpace.ink, 1 September 2020. <https://thespace.ink/latest-posts/daroga>.

“The Celebration of Technoscience in “1980,” a Futuristic Science Fiction Published from Calcutta in 1835.” ANQ: A Quarterly Journal of Short Articles, Notes and Reviews (December 2020). <https://doi.org/10.1080/0895769X.2020.18>

“Of Literary Jackfruits and the Female Sage: The Colonial Bengali Reception of George Eliot,” Literature Compass (November 2020). <https://doi.org/10.1111/lic3.12609>

### **Dr. Doyeeta Majumder**

'Machiavelli and Tyranny' in Machiavelli in his Times and Ours. ed. PrasantaChakravarty, Cambridge University Press (forthcoming)

### **Sri Ishan Chakraborty**

“Fashionable Disability: Unveiling Ableism in the Culture of Clothing.” Jadavpur University Essays and Studies, Vol. XXXII, edited by Nilanjana Deb, pp. 59-70.

## Annual Report 2020-2021

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

**Prof. Nilanjana Gupta**

"Performing Processions: Claiming the City" in Religion & the City in India, edited by Supriya Chaudhuri, Routledge: 2020.

Nilanjana Gupta "Ends or Means: Education, Women & Islam in Kerala" Women & Education in India Shantanu Majhee, Jogamaya College, 978-81-938290-3-5 2020

**Prof. Abhijit Gupta**

'Technopic imagination and the university campus in twentieth-century Calcutta', in Barnita Bagchi ed., Urban Utopias: Memory, Rights, and Speculations (Kolkata: Jadavpur University Press 2020).

**Prof. Nandini Saha**

"Speaking in a Different Voice: Dalit Women Writing in Bengali," in Women Speak Nation: Gender, Culture, and Politics, edited by Panchali Ray (Routledge, 2020).

**Prof. Paromita Chakravarti**

"Globalising the Local: Millennial Kolkata films and the bard" in All the World's His Stage: Asian Interventions in Global Shakespeare (Routledge, London and New York, 2020).

**Dr. Kaustav Bakshi**

'Harper Lee'. The American Novel from Hawthorne to Heller: Cultural Contexts and Critical Perspectives. Eds. Ashok K Mohaptra, Pritha Chakraborty, S Banerjee Mukherjee (New Delhi: Macmillan Education, 2020).

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year):

**Dr. Saswati Halder**

Imperial Captive: The Elephant as an Emblem of Shared Heritage' conference proceedings of the International Seminar on 'Re-thinking Romanticism,' the Bhawanipur Education Society College, Kolkata, in collaboration with Indo British Scholars' Association, Kolkata. ISBN 978-93-82178-32-3, Pencraft International, New Delhi, 2021, pp. 84-92.

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Paromita Chakravarti	Members of Sappho for Equality	Sappho for Equality	Joint project on Mobilising Single Women in West Bengal	5 years. 2016 to 2021

## Annual Report 2020-2021

<b>Paromita Chakravarti</b>	Dipta Bhog and Shabani Hassanwala	Nirantar—Third Eye	Jointly conceptualizing and writing script for film on sex work for the web portal Third Eye	2020
<b>Paromita Chakravarti</b>	Monika Banerjee	Institute of Social Studies Trust (ISST)	Jointly conceptualizing and conducting online course on women and Work	2020 November to 2021 December

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**A. Books/Monographs Published:**

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Nilanjana Gupta</b>	Beyond Madrasas	Routledge, UK		Forthcoming 2022

**B. Books/Monographs Edited:**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Paromita Chakravarti, Poonam Trivedi and Ted Motohashi	Asian Interventions in Global Shakespeares	Routledge	ISBN 978-0-367-61519-2	2021
Sonia Sahoo and <b>Ramit Samaddar</b>	Eighteenth-Century Crossovers: Gender, Genre, and Geography	Jadavpur University	ISSN 0975-3478	2020
<b>Manojit Mandal</b>	Persons with Special Needs and Rehabilitation Management-Issues in Cultural Diversity and Management	Jadavpur University	2321-9254	2019-2020
<b>Kaustav Bakshi and Madhuja Mukherjee</b>	Popular Cinema in Bengal: Stardom, Genre, Public Cultures	Routledge (UK)	ISBN 9780367330828	2020

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

**Annual Report 2020-2021**

<b>Name of the Seminar/Workshop/Conference /Symposium</b>	<b>Name of the Coordinator (s)/ Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
IACLALS Virtual International Conference “Utopias and Dystopias in Our Times”	<b>Prof. Nandini Saha</b>	NA	Online	18-20 March 2021
National Webinar on “Narratives of Faith: Devotional Songs and Poetry of the Multicultural Societies of Bengal”	<b>Dr. Rafat Ali and Professor Sonia Sahoo</b>	NA	Online	17-18 February 2021

**D. Refresher Courses Organized:**

**(Name of the Teachers, Title of the Course, if any, Duration, Place):**

<b>Title of the Course</b>	<b>Name of the Coordinator (s)</b>	<b>Place</b>	<b>Date</b>
Protean Works: Literary and Cultural Metamorphosis	<b>Prof. Sonia Sahoo and Dr. Saswati Halder</b>	Kolkata	1-15 March, 2021

**E. Orientation Courses/ Refresher Courses Attended:**

<b>Name of the Teacher</b>	<b>Title of the Course</b>	<b>Place</b>	<b>Date</b>
<b>Dr. Ramit Samaddar</b>	Refresher Course in English (UGC HRDC, Aligarh Muslim University)	Online	12-25 January, 2021
<b>Dr. Abhishek Sarkar</b>	Refresher Course in Women’s Studies organized by North Bengal University	Online	12-25 January 2021
<b>Dr. Doyeeta Majumder</b>	Faculty Induction Programme, Jadavpur University	Kolkata	February - March , 2021s
<b>Sri. Ishan Chakraborty</b>	Summer School on Disability Studies	Centre for Disability Studies (GCDS), Gujarat National Law University	8-16 August, 2020.

**Annual Report 2020-2021**

<b>Ishan Chakraborty</b>	Protean Wor (l) ds: Literary and Cultural Metamorphosis	Department of English, Jadavpur University	1-15 March, 2021
--------------------------	---	--	------------------

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Nilanjana Gupta</b>	Keynote Address	“Indian Dance and Dissent”	Swarthmore College, USA Online	1 day
<b>Nilanjana Gupta</b>	Special Guest Address	Winter School, An Online Workshop on Islamic Studies	Delhi/Alia University Online	1 day
<b>Nilanjana Gupta</b>	Special Lecture	Virtual Lecture Series	Adamas University Online	1 day
<b>Nilanjana Gupta</b>	Lecture	Refresher Course “Exploring the Urban: In Time and Space.”	Dept of History, JU Online	1 day
<b>Nilanjana Gupta</b>	Invited Lecture	International Webinar “Gender Issue and Women’s Rights	Acharya Sukumar Sen Mahavidyalaya Online	1 day
<b>Nilanjana Gupta</b>	Invited Lecture	Faculty Development Programme “The Art & Craft of Technical Writing	MAKAUT & Islamic University of Science & Technology, J&K, Online	1 day
<b>Nilanjana Gupta</b>	Invited Lecture	Workshop on Research Methodology in the Social Sciences	School of International Relations & Startegic Studies, JU Online	1 day
<b>Nilanjana Gupta</b>	Invited Lecture	Refresher Course Protean Wor(l)ds	Dept of English, JU	1 day

**Annual Report 2020-2021**

			Online	
<b>Nilanjana Gupta</b>	Moderator	Webinar Series Child Protection: Risks & Coping	School of Media Communication & Culture, JU & UNICEF	1 day
<b>Nilanjana Gupta</b>	Invited Lecture	Tale of Two Cities	Ganga-Jamuna Delhi	1 day
<b>Santanu Biswas</b>	Refresher Course Resource Person	How Sigmund Freud Transformed Hypnotherapy into Psychoanalysis	Refresher Course on “Protean Wor(l)ds: Literary & Cultural Metamorphosis”, Department of English, Jadavpur University	One day, March 2021
<b>Santanu Biswas</b>	Invited Lecture	Approaches to Mental Illness”, Short Term Course on “Counselling and Stress Management	UGC Human Resource Development Centre & Centre for Couns elling Services and Stu dies in Self- Development, Jadavpur University	One day, February 2021.
<b>Abhijit Gupta</b>	Lecture	'How to teach Graphic Novels'	Central University of Punjab, Bathinda	24 March, 2021
<b>Abhijit Gupta</b>	Lecture	‘A Tale of Two Trees: How India took to the Book’	Maharaja Sriram Chandra Bhanja University, Keonjhar	19 March , 2021
<b>Abhijit Gupta</b>	Lecture	‘Bidyasagar O Bangla Mudran Prakashana’	Durgapur Government College,	26 September, 2020

### Annual Report 2020-2021

<b>Nandini Saha</b>	Lecture	Pedagogical Issues in Teaching Postmodern Fiction: Challenges and Prospects	Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT) of the Ministry of Education, Govt. of India.	24 March, 2021
<b>Paromita Chakravarti</b>	Invited panelist on panel on women and displacement	Online seminar on Displacement organized by the Centre for regional Research	Online	For 20 minutes—13 December, 2020
<b>Paromita Chakravarti</b>	Invited talk on women's singleness and sexualities	Sexuality Academy—a learning workshop on gender and sexuality organized by Sappho for Equality from 17-21 March, 2021	Diamond Harbour, Kolkata	20 March, 2021—2 hour talk delivered online
<b>Paromita Chakravarti</b>	Invited talk on women's singleness	Sexuality Academy—a workshop on gender and sexuality organized by Sappho for Equality from 3 to 8 March, 2020, Diamond Harbour, Kolkata	Diamond Harbour, Kolkata	7 March, 2020—2 hour talk.
<b>Paromita Chakravarti</b>	Invited panelist	Contagion—an online programme on Performance, Space Community—a series of discussions on the performing arts in a Covid scenario conceptualised by Pickle Factory and Goethe Institut and	online	17 October, 2020, 7 to 8pm



**Annual Report 2020-2021**

		Maxmueller Bhavan Kolkata between 25 September and 17 October, 2020.		
<b>Paromita Chakravarti</b>	Keynote speaker	Webinar on “Educational Institutions and Violence Against Women” organized by the East West University, Dhaka, Bangladesh	online	5 November, 2020, 7pm
<b>Paromita Chakravarti</b>	Invited Speaker on “Homes, Addresses and Hostels: Constructing Women’s Singleness in Kolkata”	Singles Studies: Global Perspectives Interna tional Web Conference organiz ed by the Centre for Women’s Studies, Manipal Centre for Humanities, Manipal Academy of Higher Education, Manipal, India in Collaboration with English Program, College of Arts and Sciences, University of the District of Columbia, USA.	online	10 October, 2020
<b>Paromita Chakravarti</b>	Invited Plenary Speaker	Two-Day National Level Students' Online Seminar on “Interrogating Literary Theory” organized by the Department of English, Sikkim University.	online	16 October, 2020

**Annual Report 2020-2021**

<b>Paromita Chakravarti</b>	Invited talk on ideas of gender equality	Webinar on ideas of gender equality organized by Sister Nibedita general degree college for Girls, Hastings House, Kolkata	online	11 September, 2020
<b>Paromita Chakravarti</b>	Invited web talk	Webinar on Mary Wollstonecraft organized by Dhruva Chand Halder College, Dakshin Barasat, South 24 Parganas,	online	27 August, 2020
<b>Paromita Chakravarti</b>	Discussant and respondent In the seminar on “Appropriating Shakespeare Romance in Hindi Cinema”	Shakespeare Association of America conference	online	31 march to 3 April, 2020. Seminar on 2 April, 2020
<b>Paromita Chakravarti</b>	Co-leader of seminar 8 on “Hamlet’s Wiring” with John Joughin and respondent in seminar on “Shakespeare Across Fractures: Revisiting South Asian Adaptations” organized by Thea Buckley and Rosa Periago;	World Shakespeare Conference— Hamlet’s Wiring— 15 July Shakespeare Across Fractures--	Singapore	18-24 July, 2021
<b>Paromita Chakravarti</b>	Invited talk on gender parity	Heritage Institute of Technology	online	13 November, 2020
<b>Paromita Chakravarti</b>	Invited talk on gender parity	Heritage College	online	18 September, 2020
<b>Paromita Chakravarti</b>	Invited talk on gender parity	Heritage Business School	online	21 August, 2020

**Annual Report 2020-2021**

<b>Paromita Chakravarti</b>	Invited talk on gender parity	Heritage Academy	online	5 September, 2020
<b>Paromita Chakravarti</b>	Invited panelist for “Ensemble: Discussions and Beyond”	The English and Foreign Languages University Students’ Union	online	31 August, 2020
<b>Sonia Sahoo</b>	Invited lecture	Webinar on “Gender Matters: Texts and Contexts”, organized by Dept. of English and IQAC, Khatra Adibasi Mahavidyalaya	online	2 days (22-23 July, 2020)
<b>Sonia Sahoo</b>	Session Chair	Narratives of Faith: Devotional Songs and Poetry in the Diverse Traditions of Eastern Regions of India	online	2 days (17-18 February, 2021)
<b>Manojit Mandal</b>	Delivered a lecture	Special international online lecture series on English Literary Studies	Midnapore College(Autonomous), Midnapore, West Bengal, India. July 2020	1 hour
<b>Manojit Mandal</b>	Refresher Course Resource Person	Refreshers’ Course :UGC-HRDC & Department of Education Jadavpur University	Jadavpur University	One and half hour
<b>Manojit Mandal</b>	Refresher Course Resource Person	UGC Sponsored Refreshers’ Course on “Protean Wor(l)ds: Literary & Cultural Metamorphosis”	Jadavpur University	One and half hour

**Annual Report 2020-2021**

<b>Manojit Mandal</b>	Resource Person	UGC Sponsored Orientation (online) programme for college & university teachers	UGC-HRDC & Department of English Jadavpur University	One and half hour
<b>Nilanjana Deb</b>	“Life Without The Promise of Stability”: Reflections on the Community, the State and the Planet in a Post-COVID19 World”	Lecture Series on Modernity, organized by Midnapore College (Autonomous), 29 July, 2020	Online	1 day
<b>Nilanjana Deb</b>	Invited talk on "Revisiting Strategies for Sustainable Development",	International e-Conference, “e-ConSus 2020”, 13-14 June, 2020, organised by Website Monitoring Committee under the aegis of Internal Quality Assurance Cell, Banwarilal Bhalotia College, Asansol, India.	Online	1 day
<b>Nilanjana Deb</b>	Plenary Speaker, “A Forgotten History: The 1970s Agartala Satyagraha of Refugee and Migrant Women”	International Seminar titled 'Responding to Regional Disparities and Poverty- A focus on the Women Empowerment Perspective' on the 6- 7 March, 2020	DH Women’s University, WB	2 days
<b>Rafat Ali</b>	Resource Person Refresher Course	UGC Sponsored Refreshers’ Course on “Protean Wor(l)ds: Literary & Cultural Metamorphosis”	Department of English, Jadavpur University	One and half hours

### Annual Report 2020-2021

<b>Rafat Ali</b>	Resource Person Refresher Course	UGC Sponsored Refreshers' Course on Urban Studies	Department of History, Jadavpur University	One and half hours
<b>Rafat Ali</b>	Invited Lecture	Religious Practices in the Himalayas	Salesian College, Siliguri	Two Hours
<b>Sutanuka Ghosh</b>	Lecture Delivered	Partition Literature (15 March, 2021)	Department of English, St Xavier's University	1 hour
<b>Sutanuka Ghosh</b>	RC Lecture Delivered	Refresher Course	Department of English, Jadavpur University	1 hour 30 mins
<b>Sutanuka Ghosh</b>	Panel Chaired	"Narratives of Faith: Devotional Songs and Poetry of the Multicultural Societies of Bengal"	Department of English, Jadavpur University	1 hour 30 mins
<b>Kaustav Bakshi</b>	Resource Person	Refresher Course, 'Protean Wor(l)ds: Literary and Cultural Metamorphosis'	Dept of English, Jadavpur University	9 March, 2021
<b>Kaustav Bakshi</b>	Resource Person	International Working Women's Day	Women's Cell, IIT Hyderabad	8 March, 2021
<b>Kaustav Bakshi</b>	Resource Person	Bricolage II series	Dept of English, University of Hyderabad	6 March, 2021
<b>Kaustav Bakshi</b>	Resource Person	Identity politics in Indian Cinema: Exploring Queer Representations in Regional Films	Dept of Sociology, Miranda House, Delhi University	5 March, 2021
<b>Kaustav Bakshi</b>	Resource Person	"Representation and Misrepresentation of Queer in Indian Cinema"	St. Teresa's College for Women, Kerala	28 November, 2020

**Annual Report 2020-2021**

<b>Kaustav Bakshi</b>	Resource Person	Special lecture: “Queer Cinema/Queering Cinema India”	Department of English, University of Rajasthan	4 November, 2020
<b>Kaustav Bakshi</b>	Resource Person	Ensemble: Discussions and Beyond	EFLU, Hyderabad	31 August, 2020
<b>Kaustav Bakshi</b>	Resource Person	Special lecture: ‘Funny Boy: Queer Without Being Labelled’	Literati: The English Literary Association, Daulat Ram College, Delhi University	26 August, 2020
<b>Kaustav Bakshi</b>	Resource Person	“Third Gender: A Space Within Literature and Society”	Calcutta Girls College, University of Calcutta	17-18 August, 2020
<b>Kaustav Bakshi</b>	Resource Person	Special Lecture: ‘Radical Feminism to Queer Politics: Shifts in the Discursive Field of Gender and Sexuality Studies’	Department of Political Science & Public Administration, RSHSS of The Assam Royal Global University	20 July, 2020
<b>Ramit Samaddar</b>	Chaired a session	Narratives of Faith: Devotional Songs and Poetry of Multicultural Societies of Bengal	Online	2 days (17-18 February, 2021)
<b>Abhishek Sarkar</b>	Invited Lecture	International webinar on “Pandemic and Literature” organized by the Vivekananda Mahavidyalaya, Burdwan	Online	29 July, 2020

### Annual Report 2020-2021

<b>Abhishek Sarkar</b>	Invited Lecture	Webinar organized by the Department of English, Women's Christian College, Kolkata	Online	12 October, 2020
<b>Doyeeta Majumder</b>	Lecture delivered	Delhi University, Invited Lecture on Greeks and the Irrational	DU	23 February, 2021
<b>Doyeeta Majumder</b>	2 Lectures	Visva Bharati, Invited lectures on Tyranny in the Renaissance.	Visva Bharati	19 & 25 February, 2021
<b>Doyeeta Majumder</b>	Lecture	Shiv Nadar University, on Literature, Modernity and Modernism	Shiv Nadar University	27 March, 2021
<b>Ishan Chakraborty</b>	Invited lecture	The Different Aspects of Disability and the Importance of Observing the World Disability Day	Banwarilal Bhalotia College, Asansol	10 November, 2020.
<b>Ishan Chakraborty</b>	Invited lecture	Rereading the Concepts of Disability and Access through the Lens of the Pandemic	Department of English, University of Hyderabad	24 January, 2021.
<b>Ishan Chakraborty</b>	Invited lecture	New Policies and Legislation in the Field of Intellectual and Developmental Disabilities	National Institute for the Empowerment of Persons with Intellectual Disabilities (DIVYANGJAN)	31 March, 2021.

**Annual Report 2020-2021**

<b>Ishan Chakraborty</b>	Resource Person	Emotional Stress during the period of COVID-19 Pandemic	Kolkata Society for Empowerment of the Differently Abled	19 February, 2021
<b>Ishan Chakraborty</b>	Resource Person	Inclusive Education: Best Practices in India	National Institute for Empowerment of Persons With Multiple Disabilities (DIVYANGJAN), Tamil Nadu	26 March, 2021.

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Santanu Biswas</b>	Jacques Lacan and the Literary Dimensions of Psychoanalysis	Webinar on “Jacques Lacan and the Literary Dimensions of Psychoanalysis”, Department of English, School of Languages Literature and Culture	Central University of Punjab Online	One day
<b>Paromita Chakravarti</b>	Online paper presentation on.. in panel on Political Shakespeares on November 7 2020—“ Islamising Shakespeare: Critiquing Majoritarian Politics in Bengali Film Adaptations of Shakespeare”	Asian Shakespeare Association Conference, Sejong University, Seoul	Seoul	5-7 November , 2020



**Annual Report 2020-2021**

<b>Manojit Mandal</b>	“Impact and Importance of the Mother Tongue in the Contemporary World”	Department of Education, Jadavpur University	UGC sponsored Seminar on Occasion of Bhasha Dibash, International Mother-Tongue Day	21 February, 2021
<b>Manojit Mandal</b>	Delivered the keynote address “Tagore and Decolonization”	Centre for Cultural Diversity and Wellbeing in collaboration with Dept. of Political Science, SKBU, Purulia and Byanjanbarna Foundation, Kolkata	UGC-RUSA II sponsored two days’ Seminar on “Rethinking Rabindranath: Modernity, Coloniality & Decoloniality ”	Two days January 2020
<b>Nilanjana Deb</b>	‘Coolies, Nawabs and Sahibs: Reflections upon Kolkata’s Riverfront Communities’	International Seminar on ‘Megacities: Conviviality and its Limits’	Jadavpur University, Kolkata	3 days
<b>Nilanjana Deb</b>	“Aboriginal Lives Matter: Life Writing as Testimony in Black Australia”	Seminar on Life Writing: Historical Contexts and Literary Perspectives, 27-28 June, 2020. Jointly organized by the Departments of English and History in collaboration with Internal Quality Assurance Cell (IQAC), Derozio Memorial College	Online	2 days

**Annual Report 2020-2021**

<b>Kaustav Bakshi</b>	Medical Humanities and Queer Inclusivity: Initiatives in Kolkata	International Conference on Medical Humanities	London Centre for Interdisciplinary Research in collaboration with the Faculty of Health & Social Sciences, School of Applied Social Studies, University of Bedfordshire, UK (online)	
<b>Ramit Samaddar</b>	Nirmalabala Shome's Saralā: An Early Twentieth-Century Bengali Adaptation of Charlotte Brontë's Jane Eyre	#Brontë 2020 (International Conference organised by Dr. Claire O'Callaghan of Loughborough University and Dr. Sarah Fanning of Mount Allison University in collaboration with the Brontë Parsonage Museum)	Online	1 day (4 September, 2020)
<b>Ramit Samaddar</b>	Against "the Fiend-Delighting Trade": Amelia Opie and Romantic Abolitionism	Catalysts of Social Change (Thirty-Second Annual Conference of the Southeast World History Association)	Online	2 days (24-25 October, 2020)
<b>Ramit Samaddar</b>	Sardari's Story: Rebel with a Cause	South Asia in Alternative Cinema(s) (First Annual Conference of Association of Film Studies in South Asia)	Online	3 days (30 October,-1 November, 2020)

**Annual Report 2020-2021**

<b>Ramit Samaddar</b>	Mary Robinson's London	Visions and Revisions of the Metropolis (International Conference organised by London Centre for Interdisciplinary Research)	Online	2 days (21-22 November, 2020)
<b>Ramit Samaddar</b>	Felicia Hemans's Infanticidal Mother: "The Wife of Asdrubal"	Interdisciplinary Gender Studies: Issues, Facts, and Approaches (International Conference organised by TOKAMER, Altinbas University)	Online	2 days (11-12 March, 2021)
<b>Abhishek Sarkar</b>	"Mesmerism and Clairvoyance: Discovering the Western Occult in Colonial Bengal"	Annual international conference of the Nineteenth-Century Studies Association (USA)	Online	11-13 March, 2021
<b>Abhishek Sarkar</b>	"The Baul Dhwangsa Fatwa and the Canonisation of the Bauls in Elite Bengali Imaginary"	National webinar organized by the RUSA 2.0 major research project "Narratives of Faith" (Department of English, Jadavpur University)	Online	17 -18 February, 2021
<b>Ishan Chakraborty</b>	Queer-Crippling Mainstream Bengali Media in the Context of Covid-19 Lockdown (Video podcast presentation)	Criposium Virtual Conference	Department of English, Faculty of Arts & Humanities, King's College London	

## Annual Report 2020-2021

<b>Ishan Chakraborty</b>	Inclusion or a Newly-Normalized Exclusion? Crippling the Narratives of 'New Normal' and Inclusive Education through the lens of Visual Disability	International Webinar on Vulnerable Groups and Human Rights	Department of Human Rights and Human Development along with Department of Disability Studies, Rabindra Bharati University, Kolkata
--------------------------	---	---	--

### H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
<b>Ramit Samaddar</b>	Online Course on Jane Austen (Department for Continuing Education, University of Oxford)	Online	3 months 9 days (21 September, 2020 to 30 November, 2020)
<b>Ramit Samaddar</b>	Short Term Course on Gender Studies (UGC HRDC, Aligarh Muslim University)	Online	7 days (6 November, 2020 to 12 November, 2020)
<b>Ramit Samaddar</b>	Short Term Training Programme on Research Essentials in English Language and Literature (Department of English, B.S. Abdur Rahman Crescent Institute of Science and Technology)	Online	7 days (4 - 8 January, 2021)

### 6. Major Achievements of the Department during the year:

#### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Ahana Maitra	NET JRF	UGC	India

## Annual Report 2020-2021

M D Mahasweta	NET JRF	UGC	India
---------------	---------	-----	-------

### D. Any Other Major Achievements:

#### **Prof. Santanu Biswas**

1. Honorary Member, Lacan Circle of Australia
2. Editorial Board Member, Objekželje, Slovenian School of Psychoanalysis, Slovenia
3. Advisory Editorial Board Member, The Lacanian Review, New Lacanian School and the World Association of Psychoanalysis, Paris, London & New York
4. Editorial Board Member, Hurly-Burly: The International Lacanian Journal of Psychoanalysis, The New Lacanian School, Paris and London
5. Editorial Board Member, Psychoanalysis Lacan, edited by Russell Grigg, Lacan Circle of Australia
6. Editorial Board Member, (Re)-Turn: A Journal of Lacanian Studies, edited by Ellie Ragland, Missouri-Columbia, USA.

#### **Prof. Nandini Saha**

ASSOCIATION MEMBERSHIP: Nominated as Zonal Representative (East) in the Indian Association for Commonwealth Literature and Language Studies (IACLALS) in 2020.

#### **Dr. Kaustav Bakshi**

Promoted to Associate Professor wef 15 November 2020

#### **Ishan Chakraborty**

1. Ishan Chakraborty worked as a consultant editor for a report tentatively titled "Disability & STEM Education: Narratives of diverse people in STEM with disabilities." Which will be published as a part of season-5 of The Life of Science.com, A Feminist Multimedia Science Collective.
2. Ishan Chakraborty participated in Sense India side event held on the side lines of 59<sup>th</sup> Session of UN Commission for Social Development, titled "Social Development of Persons with Deafblindness in South Asia" on 15 February, 2021.

### 7. Extension Activities of the Department during the year:

#### A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.

##### **Prof. Paromita Chakravarti**

1. External expert of Internal Complaints Committee for Heritage Business School
2. External expert, Sexual Harassment Complaints Committee, Swayam, Kolkata from July, 2014.
3. External expert, Gender sensitization cell, Shyamaprasad College, Calcutta University, from 2012.
4. External Expert, Internal Complaints Committee, West Bengal National University of Juridical Sciences
5. External Expert, Internal Complaints Committee, National Institute of Electronics and Information Technology
6. External Expert Internal Complaints Committee, Srei Group of Companies (Sahaj and Quippo)
7. External expert ICC, TDSPL
8. External expert ICC, Arohan
9. External expert, Gainwell
10. Board member, Anjali, a non-government organization on mental health.
11. Founder-Trustee of EbongAlap, a NGO working on critical pedagogy for marginalized groups.
12. Member PhD Committee, Presidency University
13. Member PhD Committee, Bardhaman University

## Annual Report 2020-2021

### 14. External Member RAC, St Xaviers University

#### **Prof. Manojit Mandal**

One Year PG Diploma Course in Guidance, Psychological Counselling and Family Therapy 2019-2020, Jadavpur University, Kolkata, December 2019-January-2021

One Year PG Diploma Course in Guidance, Psychological Counselling and Family Therapy 2020-2021 Jadavpur University, Kolkata December, 2020-January 2022.

### **B. Activities for the Society:**

#### **Prof. Paromita Chakravarti**

1. Training Internal Complaints Committee members on sexual harassment issues
2. Gender sensitization workshops for Nirantar, a Delhi based NGO.

#### **Dr. Nilanjana Deb**

1. Trustee and volunteer teacher for BASICS, an NGO working for providing educational support for underprivileged children and youth
2. Did extensive relief work in different villages in Sunderbans and East Midnapore, after Cyclone Amphan in 2020.
3. Did distribution of new clothes to 300 poor women in Sagar Island in October 2020.
4. Regular feeding of meals to homeless and street people in Kolkata around the year.

#### **Dr. Kaustav Bakshi**

1. Resource Person in the preparation of the report on “Fostering Pride in Higher Education: The Road to Inclusion” – a collective effort by the Boston Consulting Group (BCG), Pride Circle Foundation and IIM-Ally, Indian Institute of Management, Ahmedabad.
2. Resource Person for a sensitization webinar on “Queer Conundrums” by Doctors for a Cause, an all-India organization of medical practitioners and students held on 20 September 2020.
3. Resource Person for a sensitization programme for gender minorities at the NGO, Anajoree, Assam on 6 August 2020.
4. Resource Person for a sensitization programme on gender-inclusivity organised by Cognizant Technology Solutions for its Indian employees on 30 June 2020.

#### **Ishan Chakraborty**

1. Worked as a consultant editor for a report tentatively titled "Disability & STEM Education: Narratives of diverse people in STEM with disabilities." Which will be published as a part of season-5 of The Life of Science.com, A Feminist Multimedia Science Collective.
2. Participated in Sense India side event held on the side lines of 59<sup>th</sup> Session of UN Commission for Social Development, titled “Social Development of Persons with Deafblindness in South Asia” on 15 February, 2021.

### **8. Students Progression during the year:**

#### **A. Progression to Higher Studies:**

<b>Number of students enrolled in higher education</b>	<b>Programmes graduated from</b>	<b>Programmes admitted to</b>	<b>Institutes admitted to</b>

## Annual Report 2020-2021

6	MA, M.Phil	MA, PhD,B.Ed	SOAS (UK), Georgia State University (US), Adamas Univeristy (India), Jadavpur University (India)
---	------------	--------------	--

### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	3
TOFEL	2
Any Other	IELTS 2

## FILM STUDIES

Phone: 033-2457-2467

Media Lab: 033-2457-2636

H.O.D : Sri Anindya Sengupta

E-mail: hod.filmstudy@jadavpuruniversity.in

### 1. Vision and Mission of the Department:

#### A. Vision:

We believe it is necessary to have a proper understanding of cinematic/mediatic processes to grasp the present world. With the Internet and the digital revolution, it is more apparent than ever that moving images have become a second social horizon. We want to intervene in the production and consumption of images to make them socially and aesthetically sensitive. We seek to create scholars, artists and producers who will make a useful intervention in the media world.

#### B. Mission:

We aim to produce and disseminate through research and teaching advanced knowledge of the role of the moving image in society. We believe that such knowledge, historical and forward looking, can produce understanding of a rapidly changing world, and contribute to the development of critical citizens aware of the central function of the cinematic/mediatic processes in our lives.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)
-----------------------	------------------	---

## Annual Report 2020-2021

		Year	No. of Students
MA		1 <sup>st</sup> year	42
		2 <sup>nd</sup> year ...	42

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1. Moinak Biswas 2. Madhuja Mukherjee 3. Abhijit Roy		Shraddhanjali Tamang Arijeet Mandal Anindya Sengupta Manas Ghosh Subhajit Chatterjee	7

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

**Moinak Biswas:** Film theory, film history, Indian cinema, cultural theory

**Madhuja Mukherjee:** Indian cinema, historiography, sound technologies and culture, gender, labour, media industries

**Abhijit Roy:** Television Studies, Indian television, media theory, new media

**Anindya Sengupta:** Film Theory, Film History, Indian Cinema, Film and Other Arts

**Subhajit Chatterjee:** Film history, Indian film and popular culture, cult and exploitation cinemas.

**Shraddhanjali Tamang:** Film and other arts, Filmmaking practices in Eastern Himalayas, Translation studies

**Arijeet Mandal:** Film Theory, Film and Philosophy

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

##### Manas Ghosh

1. 'Satyajit er Parash Pathar: Boibhober Kalpana ar Biporjoyer Duswapna', Antorjatik Pathsala, January-March 2021
2. 'Kim Ki-duk', Sambad Pratidin, 27 December, 2020
3. 'Camera, Vastav, Chalacchitra', in Other Voice, November 2020
4. 'Nabya Prachyabadi Chalacchitrer Shroshta: Kim Ki-duk', Desh, 2 January, 2021

##### Moinak Biswas

1. 'Limits of Representation, Ritwik Ghatak's Subarnarekha', in Philosophy East and West, Vol 71, Number 1, January 2021.
2. 'Is it Post-Cinema?' in IIC Quarterly (Indian Cinema, Today and Tomorrow: Infrastructure, Aesthetics, Audiences), Winter 2020-Spring 2021, Vol. 47, Nos. 3-4, 2021.



## Annual Report 2020-2021

3. 'Charulata: Likhan o Chhabi', Kolkata Purasree, Satabarshe Satyajit Bisesh Sankhya, January, 2021

### **Anindya Sengupta**

1. 'Pratham Duti Chhobi: Aparer Alo', Desh, May 2, 2021
2. 'The Mother and the Daughter in a Son's Story: 'Apu Trilogy' and Women's Modernity', Critical Collective, April 2021
3. 'Satyajit Ray ebong Juger Andhar', \*Kolkata Purasree, Satabarshe Satyajit Bisesh Sankhya\*, January, 2021

### **Shradhanjali Tamang**

1. 'Importance of Mother Tongue and Education in Chandrika', in Chandrika Centenary Special, 119-124., December 2020.

### **Madhuja Mukherjee**

1. "Speaking with Suhasini Mulay: A short story about a long strife", Studies in South Asian Film & Media, 11. 2 (2020): 225–243.
2. "Aspirational cinema: Circuits of cinephilia, amateur films and local film festivals". Journal of the India International Centre / IIC Quarterly (Indian Cinema, Today and Tomorrow: Infrastructure, Aesthetics, Audiences), 47. 3 & 4 (Winter 2020–Spring 2021): 269-284.
3. The Shadow and the Arc Light: Finding the Female workforce in Bombay Cinema", in E-Cine India (ISSN: 2582-2500), The Quarterly Film Journal of Fipresci-India, July-September 2020. (LINK:[http://www.fipresci-india.online/e-cineindia-july-september-2020/?fbclid=IwAR0BJbXKa9P9QAj9rGeUwZeZmxUbu-K3xJU\\_s8gDKFnBgbNrk8TbyOXv11M](http://www.fipresci-india.online/e-cineindia-july-september-2020/?fbclid=IwAR0BJbXKa9P9QAj9rGeUwZeZmxUbu-K3xJU_s8gDKFnBgbNrk8TbyOXv11M))
4. Transforming Spaces: Gem Cinema as a site of artistic transactions", Cinema, Critical Collective, September 2020. (LINK:<https://www.criticalcollective.in/Cinema.aspx?tid=21>)
5. "Trip to Moon: Science, fiction, films and media- installations", Issue: Independent & Closureless Film Reading, Kaurab ONLINE no. 58, December, 2020. (LINK:[http://www.kaurab.com/kau58/kau58\\_suchi.html](http://www.kaurab.com/kau58/kau58_suchi.html))
6. "Returning to Soumitra Chatterjee's Influential Roles" in The Wire, 23 November, 2020. (LINK:<https://thewire.in/film/soumitra-chatterjee-roles-filmography-bengal-politics>)
7. "Hands behind the screen: Women, Indian cinema, and participatory history" in thespace.ink (Banglalive.com initiative), 20 November, 2020. (LINK: <https://thespace.ink/cover-story/role-of-women-in-bollywood/>)
8. "Cinema and Saradindu: Remembering Bandyopadhyay's Bombay Talkies phase", in thespace.ink (Banglalive.com initiative), 30 March, 2021. (LINK:<https://thespace.ink/potpourri/culture-history-heritage/saradindu-bandyopadhyay-and-bombay-talkies/>)

## **E. Research Articles Published in Edited Volumes during the year:**

**(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):**

### **Moinak Biswas**

1. 'Film, Revolution, Politics, Criticism in the Seventies', in Partha Chatterjee ed. After the Revolution, Essays in Memory of Anjan Ghosh, (Hyderabad: Orient Blackswan, 2020).
2. 'Thinking with Cinema: Mani Kaul Reading Deleuze', in Brinda Bose ed. Humanities, Provocateur, Towards a Contemporary Political Aesthetics (New Delhi: Bloomsbury, 2021)

### **Madhuja Mukherjee**

1. Detouring Networks" (with Monika Mehta) in Industrial Networks and Cinemas of India: Shooting Stars, Shifting Geographies, and Multiplying Media, ed.s Monika Mehta, Madhuja Mukherjee. London/ NY: Routledge (2021), pp. 1-17.

## Annual Report 2020-2021

2. "Arriving at Bombay: Bimal Roy, transits, transitions, and cinema of intersection" in *Industrial Networks and Cinemas of India: Shooting Stars, Shifting Geographies, and Multiplying Media*, ed.s Monika Mehta, Madhuja Mukherjee. London/ NY: Routledge (2021), pp.108-123.
3. "The Public in the Cities: Detouring through Cinemas of Bombay, Calcutta and Lahore (1920s-1930s)", in *South Asian Filmscapes: Transregional Encounters*, ed.s Elora Halim Chowdhury and Esha Niyogi De. Seattle: University of Washington Press: (2020), pp. 119-139.
4. "To speak or not to speak: Publicity, Public Opinion, and Transition into Talkies (Calcutta, 1931-35)", in *Indian Sound Culture, Indian Sound Citizenship*, ed.s Laura Brueck, Jacob Smith, Neil Verma. Michigan: University of Michigan Press (2020), pp. 268-296.

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year**

**B. Books/Monographs Edited:**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Madhuja Mukherjee</b> (with Monika Mehta)	Industrial Networks and Cinemas of India: Shooting Stars, Shifting Geographies and Multiplying Media	Routledge (Taylor & Francis group)	ISBN: 978-0-367-21058-8	January 2021.
<b>Subhjit Chatterjee</b> (with S.V. Srinivas, Ratheesh Radhakrishnan and Omita Goyal)	Indian Cinema, Today and Tomorrow: Infrastructure, Aesthetics, Audiences), Winter 2020-Spring 2021, Vol. 47, Nos. 3-4, 2021.	India International Centre, New Delhi	ISSN: 0376-9771	2020-2021

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/ equivalent	Title of the Proceedings, if published	Place	Date
Satyajit Ray Centenary Seminar	<b>Moinak Biswas</b>	NA	Online	13, 14 March, 2021
'Thinking through Industrial Networks and Cinemas of India'	<b>Madhuja Mukherjee</b> (and Monika Mehta, The State University of New York at Binghamton)	NA	The State University of New York at Binghamton, New York. (Online)	30 January, 2021.

**E. Orientation Courses/ Refresher Courses Attended:**

**Annual Report 2020-2021**

<b>Name of the Teacher</b>	<b>Title of the Course</b>	<b>Place</b>	<b>Date</b>
<b>Shradhanjali Tamang</b>	Jadavpur University HRDC, UGC Sponsored faculty Induction Programme (Guru Dakshata)	Kolkata	21.12.2020 - 28.01.2021

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Manas Ghosh</b>	Invited Talk	UGC Faculty Improvement Programme	North Bengal University	19 December, 2020
<b>Manas Ghosh</b>	Invited Talk	UGC Faculty Improvement Programme	North Bengal University	22 December, 2020
<b>Manas Ghosh</b>	Invited Talk	AICTE Induction Programme	Rajasthan Technical University, Kota	27 November, 2020
<b>Manas Ghosh</b>	Session Chaired	Global Education and the Humanities in the time of Covid 19, International Conference	Centre for Canadian Studies, Jadavpur University	10 February, 2021
<b>Manas Ghosh</b>	Session Chaired	IBWTL 2020 International Conference	IBJCAL & School of Languages & Linguistics, Jadavpur University	15 January, 2021
<b>Madhuja Mukherjee</b>	Resource Person	UGC-Human Resource Development Center & Jadavpur University, Refresher Course in History titled 'Exploring the Urban: In time and space'	Department of History, Jadavpur University (Online)	6 March, 2021
<b>Madhuja Mukherjee</b>	Resource Person	UGC-Human Resource Development Center	Department of English, Jadavpur	13 March, 2021

**Annual Report 2020-2021**

		& Jadavpur University Refresher Course entitled 'Protean Wor(l)ds: Literary and Cultural Metamorphosis'	University. (Online)	
<b>Madhuja Mukherjee</b>	Resource Person	UGC-Human Resource Development Centre (HRDC), Guru Nanak Dev University, Amritsar Faculty Induction Programme-03	Guru Nanak Dev University, Amritsar (Online)	13 February, 2021
<b>Madhuja Mukherjee</b>	Chair (New Wave cinemas)	International Webinar on SOUTH ASIA IN ALTERNATIVE CINEMAS	English and Foreign Languages University (EFLU) Hyderabad in collaboration with Department of English, Shivaji University, Kolhapur, Maharashtra (Online)	30 October -1 November, 2020
<b>Madhuja Mukherjee</b>	Chair (Gender, Sexuality, Queer and cinema)	International Webinar on SOUTH ASIA IN ALTERNATIVE CINEMAS	English and Foreign Languages University (EFLU) Hyderabad in collaboration with Department of English, Shivaji University, Kolhapur, Maharashtra (Online)	30 October-1 November, 2020.

### Annual Report 2020-2021

<b>Madhuja Mukherjee</b>	Chair (Women's Empowerment and Feminist Screen Cultures)	Towards New Visions: Women in Films, Media and Beyond, International Conference	Canada India Research Centre for Learning and Engagement (CIRCLE) University of Guelph, Ontario, Indian Institute of Technology, Madras, Shastri Indo-Canadian Institute's Golden Jubilee Conference and Lecture Series Grant (GJCLSG)	11-12 March, 2021.
<b>Madhuja Mukherjee</b>	Invited Speaker	South Asian Filmscapes: Transregional Encounters (Panel)	University of Massachusetts at Boston, UCLA Center for India and South Asia and University of Washington Press (Online)	14 January, 2021
<b>Subhajit Chatterjee</b>	Invited Panel Speaker (online)	National Seminar on "Bengali Cinema: Where It Stands Now!"	FIPRESCI-India	1 August, 2020
<b>Subhajit Chatterjee</b>	Invited Talk (online)	'Page, Stage & Screen' at the National Seminar on The Enterprise on Translation	Centre for Translation and Digital Humanities in collaboration with Film Society, Ravenshaw University, Cuttack	19 July, 2020
<b>Moinak Biswas</b>	The Individual and the Horizon in Satyajit Ray's Cinema	Invited Lecture	US Consulate General, Kolkata, and USIEF	31 July, 2020
<b>Moinak Biswas</b>	Satyajit Shaili	Online Seminar on Satyajit Ray Birth Centenary	Bengal Library Association Seminar <a href="https://www.youtub">https://www.youtub</a>	13 September, 2020

**Annual Report 2020-2021**

			e.com/watch?v=-hfZp2GUrDw	
<b>Moinak Biswas</b>	Bibhutibhusan: Satyajit Chhabhi	Online Seminar on 126 <sup>th</sup> Birth Anniversary of Bibhutibhusan Bandyopadhyay	<a href="https://www.youtube.com/watch?v=f4KIp3tz83A">https://www.youtube.com/watch?v=f4KIp3tz83A</a>	14 September, 2020
<b>Moinak Biswas</b>	Women in Satyajit Ray's Cinema	Resource Person in Refresher Course on Gender and Social Transformation	Burdwan University	21 September, 2020
<b>Moinak Biswas</b>	Thinking with Cinema	Resource person in Refresher Course on Literary Studies and the Question of Interdisciplinarity	Jadavpur University	14 January, 2021
<b>Moinak Biswas</b>	Solitude, Desolation, Film	Online seminar on 'Loneliness'	<a href="https://www.youtube.com/watch?v=M89dN1sBuIA&amp;t=106s">https://www.youtube.com/watch?v=M89dN1sBuIA&amp;t=106s</a>	22 January, 2021
<b>Moinak Biswas</b>	Kantha, Sabdasamabay : Ritwik Ghatak Chhabhi	Online seminar on Ritwik Ghatak	Moviyana Film Society, Dhaka	23 February, 2021
<b>Abhijit Roy</b>	Invited lecture on 'Media Research: Cultural Theory Perspectives'	Ph.D Coursework lecture series	St. Xavier's University, Kolkata (online)	15 May, 2020
<b>Abhijit Roy</b>	Invited lecture on 'Film Time, Spectatorship and Adaptation'	Virtual Lecture Series, 20-26 May, 2020	Dept of English Language and Literature, Adamas University, Kolkata	21 May, 2020
<b>Abhijit Roy</b>	Invited lecture on 'Television News and Democracy'	Second Webinar Series, 6-12 May, 2020	Institute of Media Studies, Utkal University,	9 May, 2020

**Annual Report 2020-2021**

			Bhubaneswar, Odisha	
<b>Abhijit Roy</b>	Invited presentation on 'News, Documentary and Television'	International online colloquium on the curriculum of the proposed BA in Media Studies	Ton Duc Thang University, Ho Chi Minh City, Vietnam (online)	25 September, 2020
<b>Abhijit Roy</b>	Invited lecture on 'Visualising Literature: Time, Space, Narration'	Refresher Course on 'Literary Studies and the Question of Interdisciplinarity', 7-21 January, 2021	Department of Comparative Literature, Jadavpur University (online)	19 January, 2021
<b>Abhijit Roy</b>	Chaired a lecture session	Chaired the lecture titled 'Reading/ Translating Capital Yet Again', by Prof. John Hutnyk, Ton Duc Thang University, Vietnam	'Historical Materialist', an organisation based in Jadavpur University (online)	28 January, 2021
<b>Abhijit Roy</b>	Invited lecture on 'Film Studies and Higher Education in India'	UGC-HRDC Faculty Induction Programme, 28 January to 24 February, 2021	Guru Nanak Dev University, Amritsar (online)	10 February, 2021
<b>Abhijit Roy</b>	Invited lecture on 'Media and the Culture of Makeover'	UGC-HRDC Refresher Course on 'Protean Wor(l)ds: Literary and Cultural Metamorphosis'	Department of English, Jadavpur University (online)	2 March, 2021
<b>Arijeet Mandal</b>	Invited Talk in a Webinar called "The Feeling of Disgust: History, Philosophy, and Literature"	Invited Talk on Disgust	Department of English, Gurudas College, Kolkata <a href="https://www.youtube.com/watch?v=dycLPctKBcE&amp;t=1445s&amp;ab_channel=GD CMedia">https://www.youtube.com/watch?v=dycLPctKBcE&amp;t=1445s&amp;ab_channel=GD CMedia</a>	10 August, 2020

**Annual Report 2020-2021**

<b>Arijeet Mandal</b>	Chaired Session	IBWTL 2020 International Conference	IBJCAL & School of Languages & Linguistics, Jadavpur University	26 September, 2020
<b>Shradhanjali Tamang</b>	Invited Lecture on "Oral traditions in the Eastern Himalayas"	State Level Webinar, Narasinha Dutta College	Narasinha Dutta College (webinar)	27 July, 2020.
<b>Shradhanjali Tamang</b>	Invited Lecture on "The Aspect of Orality and the Interaction between the Oral and the Written in Tamba Oral Traditions"	Retracing Cultural History: Tibetan Buddhist Art, Myths Rituals, Oral Traditions in the Eastern Himalayas	Hill Cultures (webinar)	27 December, 2020
<b>Shradhanjali Tamang</b>	Invited Lecture on "The Significance of the Oral Traditions in the Eastern Himalayas"	One day National Webinar Organised by Departments of Languages and Social sciences in collaboration with IQAC	Darjeeling Government College (webinar)	27 November, 2020
<b>Anindya Sengupta</b>	Invited lecture on 'Future of Cinema: Implications in Post Pandemic Situation'	One day National Webinar	Tara Devi Harakh Chand Kankaria Jain College	31 August, 2020
<b>Anindya Sengupta</b>	Lecture on Satyajit Ray	Event on Birth Centenary of Satyajit Ray	IQAC, Sushil Kar College, Champahat	27 July, 2020
<b>Anindya Sengupta</b>	Invited Lecture on 'Looking at the Apu Trilogy from 2020'	Event named 'A Century of Ray'	Department of Film Studies & Lumiere: The BESC Film Club & IQAC, The Bhawanipore	28 August, 2020



**Annual Report 2020-2021**

			Education Society College	
<b>Anindya Sengupta</b>	Lecture titled 'Chhabi Pora, Uponyas Dyakha: Satyajit Ray-er Sahitye Chhabi	Two-day event titled 'Shatabarshe Satyajit'	Department of Bengali, Cotton Biswabidyalaya, Guwahati	30 August, 2020
<b>Anindya Sengupta</b>	'What was the 'auteur' in Cinema? (Do we need 'him' anymore?)'	Talk of the Month	Department of English, Presidency University	23 December, 2020
<b>Anindya Sengupta</b>	'Cinemay Art Ki? Hypermedia-r Adhipotyor Jugey Satyajitke Punosmaran'	Event titled 'Satabarshe Satyajit'	Rabindra Mahavidyalaya, Champadanga	26 July, 2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference/ Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Manas Ghosh</b>	'Herbert: Sahitya Theke Chalacchitra'	Bangla Sahitya o Chalacchitra	Haldia College	23 August, 2020
<b>Moinak Biswas</b>	'The Debate Around Post-Cinema'	Culture Beyond Modernism: The Continental Canvas	Department of Philosophy (online)	25-26 March, 2021
<b>Moinak Biswas</b>	Call for Persistence in Reconfiguring the Global	Modern Language Association Convention 2021	Toronto, Canada (online)	7-10 January, 2021
<b>Moinak Biswas</b>	Sankatkaler Chalacchitra: Satyajit Ray o sattardashak	Webinar on Satyajit Ray Centenary	Netaji Satabrshiki Mahabidyalay Ashoknagar	8 June, 2020
<b>Moinak Biswas</b>	Ananya Satyajit: Kalottirna Afuran Ek Prasanga	Webinar on Satyajit Ray Centenary	Narajole Raj College	26 June, 2020

**Annual Report 2020-2021**

<b>Moinak Biswas</b>	Character as Environment in Satyajit Ray's Cinema	The Home and the World	Ramakrishna Mission Residential College, Narendrapur	13-24 October, 2020
<b>Moinak Biswas</b>	Thinking with Cinema	Keynote paper: South Asia in Alternative Cinemas	English and Foreign Languages University, Hyderabad and Shivaji University, Kohlapur	30 October - 1 November, 2020
<b>Madhuja Mukherjee</b>	"Dirty Business: An inquiry into 'Her' indefinite role in film production".	Towards New Visions: Women in Films, Media and Beyond, International Conference	Canada India Research Centre for Learning and Engagement (CIRCLE) University of Guelph, Ontario, Indian Institute of Technology, Madras, Shastri Indo-Canadian Institute's Golden Jubilee Conference and Lecture Series Grant (GJCLSG) (Online)	11-12 March, 2021
<b>Madhuja Mukherjee</b>	"The underbelly of a city: Digital practices and new conditions for 'alternative' cinema".	International Webinar on SOUTH ASIA IN ALTERNATIVE CINEMAS.	English and Foreign Languages University (EFLU) Hyderabad in collaboration with Department of English, Shivaji University, Kolhapur, Maharashtra (Online)	30 October - 1 November, 2020
<b>Madhuja Mukherjee</b>	"Cinematic Narration, Intermediality and Certain Bengali Texts".	National Webinar on Films and Communication Studies: A	Department of English, G. D, Government College for Women, Alwar,	14 October, 2020

**Annual Report 2020-2021**

		Model in the Making	Rajasthan (Online).	
<b>Madhuja Mukherjee</b>	"Contagious Narratives: Popular cinema and popular perceptions of pandemic"	International Webinar on Apocalypse Narratives: Literature and Popular Culture	Prafulla Chandra College, Department of English in Collaboration with IQAC, Kolkata (Online)	4-5 July, 2020
<b>Madhuja Mukherjee</b>	"Bombay Cinema Uninterrupted: Or how the show goes on."	National Webinar on Bollywood: Past Challenges and Effects of the Pandemic	Department of History, Vijaygarh Jyotish Ray College, Kolkata (West Bengal) In Collaboration with IQAC (VJRC), (Online)	9 August, 2020
<b>Shradhanjali Tamang</b>	"Tamang Adivasi Jatiko Maukhik Parampara"	88th Tamang Pahichan Diwasko Ausarma Ayojit, 5 th Tamang Gyan Mahatsov	Tamang Nhangkhor Kathmandu (Webinar)	6 -8 September, 2020
<b>Anindya Sengupta</b>	"Se Juger Aboshan, E Jugey Agomon: 2020-te Apu Troyeer Tatporjo Nirman"	Symposium on 'Satyajit Ray: Cinema, Nation and Politics'	Department of English Cine Club, Gour Mahavidyalaya, Malda	26 August, 2020
<b>Anindya Sengupta</b>	'Satyajit Ray's Feluda in his fiction and films as a means to negotiate the 1970s'	Seminar titled 'Satyajit Ray: The Home and the World'	Department of English, Ramakrishna Mission Residential College	14 October, 2020
<b>Anindya Sengupta</b>	'Time Out of Joint: On Decoding 'Auteur Codes' in Apur Sansar (1959)'	Two-day Satyajit Ray Centenary Seminar	Department of Film Studies, Jadavpur University	13-14 March, 2021

**6. Major Achievements of the Department during the year:**

**B. Any other Honours received by the Faculty Members:**

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
<b>Abhijit Roy</b>	Membership of the editorial board of Studies in South Asian Film & Media (ISSN 17564921), a double-blind	Intellect Books	Through email,

## Annual Report 2020-2021

	peer-reviewed journal published by Intellect.		4 September, 2020
--	---	--	-------------------

### 7. Extension Activities of the Department during the year:

#### A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.

##### Abhijit Roy

Collaborated with Dr. Taberez A. Neyazi, Assistant Professor, Department of Communications and New Media, National University of Singapore, in the research project titled 'Digital Political Campaign' with particular reference to 2021 West Bengal Legislative Assembly Elections.

#### B. Activities for the Society:

##### Abhijit Roy

1. Speech, online panel discussion on 'Lockdown, the State and Us', organised by Ebong Alap, a Non Governmental Organisation, 16 April 2020.
2. Moderated an online panel discussion on 'Those who stood by migrant workers and others during the lockdown', organised by Ebong Alap, a Non Governmental Organisation, 23 April 2020.
3. Speech, online panel discussion on the death of Fr. Stan Swamy, organised by Nari Nigraha Birodhi Nagarik Committee, 11 October, 2020

##### Anindya Sengupta

1. Invited speaker on 'Future of Journalism & Mass Communication and Film Studies after Graduation', Department of Journalism & Mass Communication, New Alipore College & Vijaygarh Jyotish Ray College, August 21, 2020
2. Chaired Students' Seminar as a part of "Shotoborshe Satyajit", organised by the Department of Film Studies with collaboration with Xaverian Film Academy, April 10, 2021
3. Resource Person, lecture on 'Cinema of Solitude & Isolation', Online course on Film Appreciation, The Jadavpur Association of International Relations and UGC Human Resource Development Centre, Burdwan University from September 2 to September 8, 2020

## HISTORY

Phone: 033-2457-2281/2401

H.O.D: Prof. Rup Kumar Barman

Prof.Kaushik Roy (Since 20.8.2020)

E-mail: kroymilhist@yahoo.com

### 1. Vision and Mission of the Department:

#### A. Vision:

To be a foremost centre generating new perspectives on teaching and research in History and foster awareness of the past free from distortions.

#### 1.B. Mission:

To expand the horizons of the discipline of history and discover new frontiers of research which will benefit students and the wider public and contribute to a nuanced understanding of the past.

## Annual Report 2020-2021

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Bachelor of Arts (History)	Three	1 <sup>st</sup> year	Approximately Two Hundred Students (all three years combined)
		2 <sup>nd</sup> year	
		3 <sup>rd</sup> year	
Master of Arts (History)	Two		Approximately One Hundred and Nineteen Students (both years combined)
M.Phil in History	Two	1 <sup>st</sup> year	NINETEEN (approximately per year)
PhD in History	Three +		SIXTY-FIVE

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
8	3	4	14

The faculty members, students and office staff of the Department of History, Jadavpur University mourn the untimely demise of their esteemed colleague Professor Subhashis Biswas on September 15, 2020.

### 4. Research Activities:

#### A. Broad Areas of Research Activities:

- HISTORY OF ANCIENT INDIA
- HISTORY OF MEDIEVAL & EARLY MODERN INDIA
- HISTORY OF COLONIAL AND POSTCOLONIAL INDIA
- HISTORIES OF ENVIRONMENT, MEDICINE, SCIENCE & TECHNOLOGY,
- HISTORIES OF IDEAS, SOCIETIES AND WARS & CONFLICTS

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
The Specifics of the Urban Condition in the Global South: A Historical Perspective	Departmental	Sudeshna Banerjee	RUSA 2.0	2019-21

### Annual Report 2020-2021

Health, safety and healing: Exploring the early roots of medical & religio-medical ideas and discourses in early Indian traditions and their manifestations in Bengal”.	Individual Project [Thrust Area: Studies in Global South]	<b>Nupur Dasgupta</b>	Rashtriya Uchchatar Siksha Abhiyan (RUSA) 2.0	Two Years (15/02/19-31/03/202)
Historical Legacy and Regionalism in India: A Study on the Regionalism of postcolonial North Bengal,	Individual	<b>Rup Kumar Barman</b>	Indian Council of Social science Research (ICSSR, New Delhi)	Two Years (12/2019-11/2021)
“Dissemination of Buddhism in the Twentieth Century Bengal”	Individual	<b>Rup Kumar Barman</b>	Indian Council of Historical Research (ICHR, New Delhi)	Two Years (01/ 2021-12/ 2023)
‘Practice of Folk Medicine by the Indigenous People of Sundarbans: A Historical Analysis’	Individual	<b>Rup Kumar Barman</b>	Indian National Science Academy (INSA, New Delhi)	Two Years (12/2020-11/2020)
'Education amongst Adivasis in Hingalgañj Block, Sundarban, North 24 Parganas, West Bengal'	Individual	<b>Maroona Murmu</b>	Rashtriya Uchchatar Siksha Abhiyan (RUSA) 2.0	Two Years 19/04/19-31/03/2021
‘Numismatography of Pre-Modern North-East Indian Princely State: A Study in Historical Perspective’	Individual	<b>Debajit Dutta</b>	ICHR Major Research Project	

**C. Doctoral Research Activities:**

Number of students awarded Ph.D. during the year	Number of Ph.D students registered in the Department
6	65

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):**  
(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

## Annual Report 2020-2021

- Mahua Sarkar, 'Rammohan Roy and the vision of a grand symbiosis' SKBU e-Journal of History, 2021, Volume 1, Number 1, pp.1-10
- Mahua Sarkar, 'Pollution, Public Health and the People of Calcutta: The Nineteenth century' in Journal of the Asiatic Society Vol. LXII No4 2020; pp.85-120.
- Anuradha Roy, 'বাঙালি জাতি সত্তার সন্ধানে', দশদিশি: বাঙালি জাতি সত্তা' বিষয়ে বিশেষ সংখ্যা, ২০২০, ISSN: 2320-3153
- Anuradha Roy, 'অনলাইন পড়াশোনা:একটু তর্ক হোক না', আরেক রকম, ১৬ জুলাই, ২০২০, RNI No. WBBEN2013/49896
- Anuradha Roy, 'আজকের রাজনীতিরঙ্গ: আসুন একটু তলিয়ে দেখি', আরেক রকম, ১ ফেব্রুয়ারি ২০২১
- Anuradha Roy, 'হিন্দুত্ব: মুখ আর মুখোশের গল্প', আরেক রকম, ১৬ ফেব্রুয়ারি ২০২১
- Nupur Dasgupta, 'Prameha: Conception of a Disease in Ancient Āyurvedic Texts', Journal of The Asiatic Society, Volume LXII, No. 4, 2020, pp. 17 – 48. ISSN 0368-3308
- Nupur Dasgupta, 'Notes on Gleanings: William Jones, "The Design of a Treatise on the Plants of India"', Asiatick Researches: or, Transactions of the Society, Volume the Second, Calcutta, 1790, 345-352', Journal of The Asiatic Society, Volume LXII, No. 4, 2020, pp. 247 – 260. ISSN 0368-3308
- Kaushik Roy, 'Focusing on India's Look East Policy: India-China Relationship from 1947 to 2020,' International Area Studies Review, vol. 24, no. 2 (2021), pp. 79-96.
- Kaushik Roy, 'Kalaha, Vighraha and Yuddha in Ancient India: Circa 500 BCE-Circa 650 CE,' Small Wars & Insurgencies, 2021, 1-25, DOI: 10.1080/09592318.2021.1975525
- Rup Kumar Barman, 'Casteism and Caste Intolerance in India: A Study on Casteism of Contemporary West Bengal', The Contemporary Voice of Dalit, Vol. 12, No. 2(November, 2020), pp.165-180.
- Rup Kumar Barman, 'From the Wang Chhu to the Dudhkumar: A History of the Raidak River'The Mirror, Journal of History, (ISSN 2348-9596), Vol 7, No 2. (2020), pp.10-28.
- Rup Kumar Barman, 'Gobinda Halder (1930-2015): A Forgotten Lyricist of the Indian Subcontinent', Journal of Historical Studies and Research Volume 1, No 1 (2021), pp.31-38
- Chandrani Banerjee Mukherjee, "Nalanda and Vikramshila: Analyzingthe Contours of Urbanity in Ancient India", Modern Historical Studies (UGC CARE Listed), Vol. 14, April 2020 (In Press)

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

- Mahua Sarkar, 'The Idea of Justice and Evolution of the Calcutta High Court (1862-1915)' in Sabyasachi Bhattacharya ed. A Comprehensive Historyof ModernBengal 1700-1950, vol.2, Primus Books, 2020 pp.381-418 no.12.
- Mahua Sarkar, 'Healthcare of a Bhadramahila in Nineteenth century Bengal: a case study of the Bamabodhini' in Suvankar De ed. Health Has a History, K.P. Bagchi and Company, 2021 Kolkata
- Mahua Sarkar, 'Environmental Sanitation and the Bhadrals of Calcutta 1817-1911' in Mahua Sarkar ed. Historical Essays in Memory of Subhasis Biswas: Themes in Science Technology Environment and Medicine, Alphabet Books with Manohar Publishers and Distributors, Kolkata, 2021, pp.35-54.
- Mahua Sarkar, 'AlapcharitayBanglarItihash' (in Bengali) Introductory lecture in Gautam Mukhopadhyay et.al Adhunik Banglar Itihash: Halfiler Gabeshana, Abishkar Publications, Kolkata 2021.

## Annual Report 2020-2021

- Anuradha Roy, ‘Bengali Literature Riding the Wave of Nationalism and Communism, 1905-1950’ in Comprehensive History of Modern Bengal, 1700-1950 edited by Sabyasachi Bhattacharya (a project of Asiatic Society of Bengal), Primus Books, New Delhi, 2020, ISBN: 9789389901955
- Anuradha Roy, ‘When Symbolism becomes a Neurological Disorder: Nationalism at a Critical Historical Juncture’ in Alternative Arguments: Essays in Honour of Surendra Gopal edited by Syed Ejz Hussain and Sanjay Garg, Primus Books, 2020, ISBN: 9789390232857
- Ranjan Chakrabarti 2020. ‘A Tale of Rivers of Bengal: An Environmental History’ in Sabyasachi Bhattacharya ed. A Comprehensive History of Modern Bengal 1700-1950, Volume I, New Delhi and Kolkata: Primus Books and the Asiatic Society; pp. 308-29. (Published in June 2020); ISBN 978-93-89901-95-5
- Ranjan Chakrabarti, ‘Human-Tiger Conflict in the Forests of Bengal: A Case Study of the Sundarbans’ in Sabyasachi Bhattacharya ed. A Comprehensive History of Modern Bengal 1700-1950, Volume II, New Delhi and Kolkata: Primus Books and the Asiatic Society; pp. 659-696. (Published in June 2020); ISBN 978-93-89901-95-5
- Nupur Dasgupta, ‘Sacred frames: knowledge, culture and ritual agency in ancient tālukasof Karnataka (late 10th–12th centuries)’, in Henry Albery, Jens-Uwe Hartmann and Himanshu Prabha Ray, eds., Power, Presence and Space: South Asian Rituals in Archaeological Context, London & New York, Routledge, Taylor & Francis Group, 2021, 258 – 287.
- Sudeshna Banerjee, ‘Muck on the Milky Way: Middle-Class “Frailty” and the Social Life of Milk, Calcutta 1914 to 1947’ in Suvabrata Sarkar and Sudit Krishna Kumar (eds.), Contextualizing the Body: The Indian Experience, New Delhi, Manohar, 2021, pp. 245-68.
- Sudeshna Banerjee, ‘Bollywood on the No-Man’s Land’ in Rajat Acharyaa, Shibashis Chatterjee and Anindyajyoti Majumdar (eds.), Studies in Peace and Conflict, Delhi, Routledge, 2021, pp. 195-222.
- Kaushik Roy, ‘Martial Race Theory and Recruitment in the Indian Army during Two World Wars,’ in Douglas Delaney, Mark Frost, and Andrew L. Brown (eds.), Manpower and the Armies of the British Empire in the Two World Wars (Ithaca/London: Cornell University Press, 2021), pp. 86-100, ISBN 978-1-5017-5584-2.
- Maroona Murmu, “Janaika Grihabodhur Diary: Scripting the Self by the ‘Cultural Other’” in Historicizing Gendered Modernities in India, ed. Amitava Chatterjee, New Delhi: Primus, 2020. ISBN: 978-93-89850-0-00
- Utsa Ray, ‘New Global Imperialism’ in Teresa A. Meade, Merry E. Wiesner-Hanks ed. A Companion to Global Gender History, Wiley Blackwell, Hoboken, NJ, USA, 2021, Print ISBN: 9781119535805; Online ISBN: 9781119535812

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department/School/Centre during the year:

#### A. Books/Monographs Published:

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Ranjan Chakrabarti</b>	Critical Themes in Environmental History of India	Sage and Indian Council of Historical Research; New Delhi	978-93-5388-314-0	2020
<b>Kaushik Roy</b>	Fighting Rommel: The British Imperial Army in North Africa during the Second World War, 1941-1943	Routledge	978-0-367-26570-0	2020



### Annual Report 2020-2021

<b>Kaushik Roy</b>	Military Thought of Asia: From the Bronze Age to the Information Age	Routledge	978-0-367-36018-4	2021
<b>Kaushik Roy</b>	A Global History of Pre-Modern Warfare: Before the Rise of the West, 10,000 BCE-1500 CE	Routledge	978-0-367-24717-1	2022
<b>Rupkumar Barman</b>	Migration, State Policies and Citizenship: A Historical Study on India, Bangladesh and Bhutan	Aayu Publications, New Delhi	9789389381139	2020
<b>Rupkumar Barman</b>	Caste, Class and Culture: The Malos, Adwaita Malla Barman and History of India and Bangladesh	Abhijeet Publications, New Delhi	9789388865494	2020
<b>Rupkumar Barman</b>	The Raidak: A Transnational River from Bhutan to Bangladesh through India	Mittal Publications, New Delhi	9789390692255	2021
<b>Samarpita Mitra</b>	Periodicals, Readers and the Making of a Modern Literary Culture: Bengal at the Turn of the Twentieth Century	Brill (Leiden & Boston)	E-Book 978-90-04-42708 Hard Back 978-90-04-42564-4	2020

#### B. Books/Monographs Edited:

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Mahua Sarkar</b>	Historical Essays in Memory of Professor Subhasis Biswas	Alphabet Books with Manohar Books	978-81-948637-2-4	2021
<b>Anuradha Roy &amp; Melitta Waligora</b>	Kolkata in Space, Time and Imagination, V. 2	Primus Books, New Delhi	ISBN ISBN-10: ISBN- :9389850851 :139389850857-978	2020
<b>Rup Kumar Barman</b>	Malo JatirItihas O Akargrantha	Cognition Publications, Kolkata	9789386529282	2020

#### D. Refresher Courses Organized:

(Name of the Teachers, Title of the Course, if any, Duration, Place):

Title of the Course	Name of the Coordinator(s)	Place	Date

## Annual Report 2020-2021

Exploring the Urban: In Time and Space	<b>Sudeshna Banerjee</b>	Kolkata	March 01 –15, 2021
--	--------------------------	---------	--------------------

### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
<b>Samarpita Mitra</b>	Exploring the Urban: In Time and Space	Kolkata	01 – 15 March, 2021
<b>Debajit Dutta</b>	Exploring the Urban: In Time and Space	Kolkata	01 – 15 March, 2021

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher	Type of Participation	Name of the Conference / Seminar	Place	Date / Duration
<b>Mahua Sarkar</b>	Invited Speaker	Pather Manush Vidyasagar	Bongiyo ItihasSamiti	23 December, 2020
<b>Mahua Sarkar</b>	Keynote Speaker	International Seminar on Public Health and Environment	City College (Prafulla Chandra)	11 July, 2020
<b>Mahua Sarkar</b>	Keynote Speaker	International Seminar on Epidemics and Environment	Narajol Raj College	16 July, 2020
<b>Mahua Sarkar</b>	Invited Speaker	Development of Health and Environment: Urban Dynamism in Colonial Bengal	Kshudiram Bose Central College-	24 July, 2020
<b>Mahua Sarkar</b>	Invited Speaker	Footprints of Women in Bengal	Prabhat Kumar College Contai	11 January, 2021
<b>Mahua Sarkar</b>	Invited Speaker	Environmental Sanitation and the bhadraloks of Calcutta	Jadavpur University Refreshers' Course-	4 March, 2021
<b>Anuradha Roy</b>	Invited Speaker	'Exploring the Urban in Time and Space' (Refresher Course)	Department of History, JU	1 March, 2021
<b>Ranjan Chakrabarti</b>	Invited Speaker	'Health education and Career in India- Post Corona 2020'	Eastern Institute for Integrated Learning in Management (EILM), Kolkata	6 June, 2020
<b>Ranjan Chakrabarti</b>	Invited Speaker	'Health, Education and Careers' [Management Guest Inspire Series]	Bengal Institute of Business Studies, Kolkata (BIBS)	20 June, 2020

### Annual Report 2020-2021

<b>Ranjan Chakrabarti</b>	Faculty Lecture	‘Pandemic in History: Revisiting Epidemics, Health, Society and Governance’	Vidyasagar University	20 August, 2020
<b>Ranjan Chakrabarti</b>	Session Address to the MBA Batch of 2020-2022	‘Education in Indian History’	Bengal Institute of Business Studies, Kolkata (BIBS)	03 September, 2020
<b>Ranjan Chakrabarti</b>	Invited Lecture	‘Pandemic in Historical Perspectives’	State Level Seminar Department of history in collaboration with IQAC, Bhangar Mahavidyalaya	September 08, 2020.
<b>Ranjan Chakrabarti</b>	Keynote Address	‘Pandemic, Migration & Politics of Life’	Two-Day International Teachers’ Workshop, Vidyasagar University & Calcutta Research Group, Kolkata	24 September, 2020
<b>Ranjan Chakrabarti</b>	Invited Lecture	Bicentenary Seminar on “Ishwar Chandra Vidyasagar”	Sahitya Akademi, Ministry of Culture, Government of India	22 December, 2020
<b>Ranjan Chakrabarti</b>	Invited Lecture	‘Duti Nadir Ekti Galpo: Paribesher Itihash’ (in Bengali)	Bangiya Itihash Samiti, Kolkata	January 02, 2020
<b>Ranjan Chakrabarti</b>	Invited Lecture as Chief Guest	‘Netaji Subhash Chandra Bose in the Pan-Asian Context’	On the occasion of 125 <sup>th</sup> Netaji Subhash Chandra Bose Jayanti (Parakram Diwas) Indira Gandhi National Tribal University, Amarkantak (M.P.)	23 January, 2021
<b>Ranjan Chakrabarti</b>	Invited Speaker and Panelist	‘Adaptations and Challenges from Pre-Covid to Post-Covid Era: A Crucial Juncture of Human History?’	International Webinar Department of History, North Bengal University	12 February, 2021

### Annual Report 2020-2021

<b>Ranjan Chakrabarti</b>	Inauguration Speech	‘Interrogating Societal Crises and Configuring Responses: Indian Perspectives’	Three-Day Nation Level Webinar and 19 <sup>th</sup> Annual Conference of BharatiaVidya Charcha Kendra 2021	26 February, 2021
<b>Ranjan Chakrabarti</b>	Invited Resource Person in Refresher Course	‘Cities and Swamps: A Tale of Two Cities’ in Exploring the Urban: in Time and Space (Subject: History)	Dept of History, Jadavpur University	03 March, 2021
<b>Ranjan Chakrabarti</b>	Inaugural Speech to the students of MBA	‘Education in India’	Eastern Institute for Integrated Learning in Management (EILM), held at Taj Bengal, Kolkata	24 March, 2021
<b>Nupur Dasgupta</b>	Invited online lecture	‘Prachin Bharate Rog o Tar Niramoye Atipra krita Shaktir Kalpana: Chikitsa, Dharmabiswas o Manastattwa’, (Bengali-প্রাচীন ভারতে সুস্থ প্রজনন, প্রসব ও শিশুর স্বাস্থ্য রক্ষায় অতিপ্রাকৃত শক্তিরকল্পনাঃ, চিকিৎসাতত্ত্ব ও ধর্ম বিশ্বাসে মনস্তত্ত্বের প্রভাব’)	Invited Lecture Series organised by the Bangiya Itihas Samiti	21 December, 2020.
<b>Nupur Dasgupta</b>	Invited Speaker	Health-care at home: Roots, Concepts and Practices’, at the National Webinar on Healthcare at home: Roots, Concepts and Practices in the Recent Pandemic	Department of History, Nabadwip Vidyasagar College,	19 September, 2020
<b>Nupur Dasgupta</b>	Invited Speaker	‘Health Anxiety and Faith healing: Imagining the Divine and the Demonic in Pre-Modern India’ at the One - Day International Webinar on Religion and Society in	Krishna Chandra College, Birbhum, West Bengal,	04 October, 2020

**Annual Report 2020-2021**

		Ancient and Medieval India		
<b>Nupur Dasgupta</b>	Resource person	'Built and Imagined Spaces: Evidence from an Old Provincial Town and Two Suburban Centres in Early Medieval South India'.	Refresher Course, JU	01-15 March, 2021
<b>Sudeshna Banerjee</b>	Session Chaired	'The Making and Unmaking of the Goddess: Women and Religion across Space and Time'	Department of History, Shri Shikshayatan College, Kolkata in collaboration with the Department of History and IQAC, Women's Christian College, Kolkata	20 & 21 April, 2020
<b>Sudeshna Banerjee</b>	Resource person	Engendering the Bhadramahila: Social Transformation of Patriarchy in Late Colonial Bengal'	Refresher Course on Gender and Social Transformation organized by the UGC-HRDC, University of Burdwan	10 & 23 September, 2020
<b>Sudeshna Banerjee</b>	Resource person	'Gender as a Critical Tool in the Social Sciences'	Faculty Induction Programme organized by the UGC-HRDC, University of Burdwan	05 February, 2021 to 06 March, 2021.
<b>Rup Kumar Barman</b>	Session Chaired	International Webinar on Sino-Indian Relations: Historical Perspective and Contending Contemporary Dynamics	Shahid Kshudiram College, Kamakshyaguri, Alipurduar.	19 August, 2020
<b>Rup Kumar Barman</b>	Session Chaired	International e-conference on Indian Influence on South Asian Culture and Heritage	Saldiha College, Bankura, West Bengal	3-4 September, 2020
<b>Rup Kumar Barman</b>	Invited Lecture "State, Legitimacy and Cultural Change: Reflections on the Precolonial	UGC-Sponsored Refreshers Course in History	HRDC-North Eastern Hill University, Shillong	7 October, 2020

**Annual Report 2020-2021**

	Tista-Brahmaputra Region”			
<b>Rup Kumar Barman</b>	Invited Lecture: “Literary Impression of Crafts, Technology and Folk Medicine: A Critical Study of Precolonial Literature of the Brahmaputra Region”,	UGC-Sponsored Refreshers Course in History	HRDC-North Eastern Hill University, Shillong	10 October, 2020
<b>Maroona Murmu</b>	Invited Speaker	Revisiting Hul: The Santal Rebellion of 1855	Jadavpur University	30 June, 2020
<b>Maroona Murmu</b>	Delivered the keynote address	‘Birth of the ‘Women Writers’ in Nineteenth Century Bengal’	Centre for Women’s Studies, Dr.Meghnad Saha College, Uttar Dinajpore	22 July, 2020
<b>Maroona Murmu</b>	Invited Panelist	International Day of the World’s Indigenous Peoples	West Bengal Adibasi Medicos’ Association	9 August, 2020
<b>Maroona Murmu</b>	Plenary Address	‘Connecting to an Intimate Self: Being Humane’ in the international web-conference: ‘Rethinking Humanities and its Entanglements’	Amity Institute of English Studies and Research, Amity University Kolkata	7 August, 2020
<b>Maroona Murmu</b>	Invited Lecture	Banglar Samaj-Sahitye Janajati O Pichhrebarg’	Ramkrishna Mission Residential College (Autonomous) Narendrapur	14 August, 2020
<b>Maroona Murmu</b>	Invited Lecture	‘Crisis of Humanity and the Caste Question’	Centre for Knowledge Ideas and Development Studies, Kolkata	21 August, 2020
<b>Maroona Murmu</b>	Invited for Special Lecture	‘19 <sup>th</sup> Century Women’s Writing: An Introduction’ in the Seven-Day Web-Workshop on Women's Writing & Popular Literature	Santipur College	27 August, 2020
<b>Maroona Murmu</b>	Invited Lecture	‘Santal Hul’	Department of History, Sido Kanhu Murmu University, Dumka	7 September, 2020

**Annual Report 2020-2021**

<b>Maroona Murmu</b>	Invited Panelist	‘Janapriyo Sahitya-Sanskriti’	Department of Bengali, St. Xavier’s College (Autonomous)	13 November, 2020
<b>Maroona Murmu</b>	Invited Panelist	‘Casteism: Infringement of Liberty’	Department of English, Farook College (Autonomous), Calicut and Kerala State Higher Education Council	21 January, 2021
<b>Maroona Murmu</b>	Invited Panelist	‘International Intercollegiate Media Festivals - Media I.C.E. Age & Cinevoyage 2021’	DGM College, Mumbai	10 February, 2021
<b>Maroona Murmu</b>	Invited Resource Person for the Refresher Course	‘Comparative Literary Studies: Indian Dimension’	UGC-HRDC University of Calcutta and the Department of Comparative Indian Language and Literature	8 March, 2021
<b>Chandrani Banerjee Mukherjee</b>	Resource Person	Refresher Course in History	Jadavpur University	1-15 March, 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Nupur Dasgupta</b>	‘Built and Imagined Spaces: Perspectives on built heritage in sacred landscape from early medieval Karnataka’	International Seminar on Built Heritage of India-a Cultural Reminiscence	The Centre for Indological Studies and Research, Ramakrishna Mission Institute of Culture, Kolkata.	2 - 4 March, 2021
<b>Rup Kumar Barman</b>	Migration, State Policies and Covid-19 Pandemic in South Asia	National Level Webinar on Pandemic in Global Perspective	Kalimpong College, Kalimong	7 August, 2020
<b>Rup Kumar Barman</b>	‘Migration, State Policies and Citizenship’	International Webinar on Pandemic and Migration	Basanti Devi College, Kolkata	12 August, 2020
<b>Rup Kumar Barman</b>	Cultural Heritage of the Raidak Basin	International e- conference on Indian Influence on	Saldiha College, Bankura, West Bengal	3 and 4 September, 2020.

## Annual Report 2020-2021

		South Asian Culture and Heritage		
<b>Chandrani Banerjee Mukherjee</b>	Concept of Weather in Early Historic India	One Day International Webinar: Concept of Weather in India: from Ancient times to the Modern period	Patrasayar Mahavidyalaya, Bankura	

### 6. Major Achievements of the Department during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies:

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
<b>Suchetana Chattopadhyay</b>	Muzaffar Ahmad Memorial Book Prize 2020	Muzaffar Ahmad Memorial Committee	Kolkata

#### D. Any Other Major Achievements:

1. **Prof. Kaushik Roy** is currently engaged in a project titled 'Artificial Intelligence and Transformation of Warfare' with Peace Research Institute Oslo (PRIO), Norway. He is a Global Fellow of PRIO.
2. **Prof. Kaushik Roy** is the Chief Editor of Oxford Military History Bibliography Project of New York, Oxford University Press.
3. **Prof. Kaushik Roy** is one of the editorial advisors of International Area Studies Review, published by SAGE.
4. **Prof. Kaushik Roy** is a member of the Series Editors of two series of Routledge:
  - Wars and Battles of the World
  - War and Society in South Asia.
5. **Dr. Sudeshna Banerjee**, refereed a book project to be published by Oxford University Press, New Delhi.
6. **Dr. Sudeshna Banerjee**, continued serving as member of the Academic Committee of the School of Women's Studies, Jadavpur University.
7. **Dr. Sudeshna Banerjee**, continued serving as member of the Academic Committee of the School of International Relations and Strategic Studies, Jadavpur University.
8. **Dr. Sudeshna Banerjee**, continued serving as member of the Academic Committee of the School of Media Communication and Culture, Jadavpur University.
9. **Prof. Maroona Murmu** is one of the editorial board members of the open access peer-reviewed online journal All About Ambedkar: A Journal on Theory and Praxis (E-ISSN 2582-9785)
10. **Dr. Tilottama Mukherjee** is currently the Sylff-JU Project Director (since 1<sup>st</sup> December 2020), Jadavpur University, Kolkata
11. The Department of History has an ongoing collaboration with the Department for South Asian Studies, Humboldt University, Berlin, Germany. The collaboration centers round student and faculty exchange.

### 8. Students Progression during the year [based on the data available]:

#### A. Progression to Higher Studies



**Annual Report 2020-2021**

<b>Number of students enrolled in higher education</b>	<b>Programmes graduated from</b>	<b>Programmes admitted to</b>	<b>Institutes admitted to</b>
<b>Jagyoseni Mandal</b>	M.Phil (2017-19)	D.Phil in History	Christ Church College, Oxford University
<b>Sreya Mukherjee</b>	MA (2017-19)	Ph.D in History	Washington State University
<b>Sariyatunnesa</b>	MA (2018-20)	M.Phil in History	Diamond Harbour Women's University
<b>Dishari Sadhukhan</b>	BA (2018-21)	M.A. in Global History	Free University (Berlin) & Humboldt University (Berlin))
<b>Adhiti Ghosh</b>	MA (2018-20)	B. ED	Jadavpur University
<b>Kumar Bhadury</b>	MA (Evening) 2018-20	B. ED	Jadavpur University
<b>Abhijit Ghose</b>	MA (Evening) 2018-20	B. ED	Jadavpur University
<b>Zoha Haider</b>	MA (2018-20)	B. ED	Jadavpur University
<b>Soumya Ganguly</b>	MA (2018-20)	B. ED	Syamaprasad Institute of Education and Training
<b>Swagata Nandy</b>	MA (2018-20)	B. ED	Syamaprasad Institute of Education and Training
<b>Kamalika Barman</b>	MA (Evening) 2018-20	B. ED	Ananda Chandra Training
<b>Subhajit Haldar</b>	MA (Evening) 2018-20	B. ED	Bhimpur Mahanda B.ED. College
<b>Dipak Payra</b>	MA (Evening) 2018-20	B. ED	Banu Ali and Ajiran Teachers Training Institution
<b>Kamalika Sengupta</b>	MA (2018-20)	B. ED	Shri Shikshayatan College
<b>Moumita Samanta</b>	MA (2017-19)	B. ED	Scottish Church College
<b>Utpalparna Chakraborty</b>	MA (2017-19)	B. ED	Scottish Church College
<b>Ayantika Dan</b>	MA (2018-20)	B. ED	Shimuruli Sachinandan College of Education
<b>Pritha Das</b>	MA (2018-20)	B. ED	Acharya Jagadish Chandra Bose College
<b>Silpi De</b>	MA (2018-20)	B. ED	Uluberia Govt. B.ED. College
<b>Abhinanda Sana</b>	MA (Evening) (2018-20)	B. ED	Sammilani Teachers' Training College

**B. Qualifying in State/ National/ International Level Examinations:**

<b>Name of the Examination</b>	<b>No. of students selected/ qualified</b>
--------------------------------	--

## Annual Report 2020-2021

NET	5
SET	3
GATE	1
GRE	2
TOFEL	2
Any Other IELTS	3

### C. Extra-Curricular Achievements of Students:

NAME	BATCH	TOURNAMENT	EVENTS / CATEGORY	AWARDS
<b>Sunanda Dutta</b>	PG-I	Khelo India University Games 2020	4/100 Meters Medley Relay	3rd Position
<b>Suman Mondal</b>	UG 2018-21	All India Inter-University Championship 2020	American Football	Bronze Medal
<b>Avidha Raha</b>	MA 2019-21	National Geography, Women Street Photographers	South Asia, and Tripoto	Photographs Featured
<b>Shrayon Chanda</b>	PG-I	Khaaka '21, The Theatre Festival organized by UMT, Lahore, Pakistan & Dramatico '21, The Theatre Festival organized by UCL, Lahore, Pakistan	Scriptwriting	2nd Prize

## INTERNATIONAL RELATIONS

Phone- 033-2457-2059/2229

H.O.D : Prof. Om Prakash Mishra

Prof. Anindya Jyoti Majumdar (since 4.9.2020)

E-mail: hod.ir@jadavpuruniversity.in

### 1. Vision and Mission of the Department:

**A. Vision of the Department :** The Department of International Relations functions under the aegis of one of the three pillars of Jadavpur University- the Faculty of Arts. It is committed to the cause of contributing meaningfully to social science and creating a more just and humane world.

The Department was established in 1956 as a result of the efforts of Dr. Prithwish Chakraborty, an eminent Professor from Dacca University, and Professor Triguna Sen, the then Vice-Chancellor of Jadavpur University, to promote the study of international affairs in a holistic manner. The Department

## Annual Report 2020-2021

is the only one of its kind in Eastern India offering a scope for students and young scholars to pursue and explore the discipline of International Relations.

The Department offers regular courses at the graduate level (B.A Honours in Political Science) and post graduate level (M.A in International Relations). It offers opportunities for higher education and learning through its dedicated Mphil and PhD programs. The Department also conducts a one-year PG Diploma Course (Evening) on Human Rights and Duties Education, the objective of which is to enhance knowledge and understanding of human rights and promote human rights awareness. The faculty members are encouraged to add value to the course so that students can secure employment or attempt entrepreneurship.

During the pandemic, the Department and its faculty members have smoothly adapted to the online mode of teaching and learning through social media platforms. Information dissemination including scheduling of lecture, circulation of University notification as well as sharing of academic resources and organization of webinars have been enthusiastically undertaken.

The Department has received UGC funding under three phases of the Department Special Assistance (DSA) programme that started in 1986, which has enabled the Department to build up its infrastructure and hold national and international conferences, student seminars, and enabled the faculty to conduct field trips to facilitate their research activities. The Department also received assistance from the UGC's ASIHSS programme in 2004-5, which further helped in infrastructure building and research pursuits. In 2009, the Department was upgraded to the status of a Centre for Advanced Study (CAS) by the UGC and completed its second phase in 2020. The Department publishes The Jadavpur Journal of International Relations, which has been taken over by SAGE Publications since 2014.

- B. Mission of the Department:** The Department of International Relations is committed to the mission of Jadavpur University to create a dynamic, responsible and evolving learning community. It aims to nurture students and researchers in an environment of value-based, inclusive education, enriched scholarship, equal opportunity and social diversity. It abides by the core values of the University to achieve the highest standards of excellence in teaching, research, creative expression and service to the community.

**2. Academic Activities:**

**A. Programmes offered:**

**B. Courses offered:**

1. The Department offers Political Science (Hons.) course at the B.A. level. There are six semesters; and eighteen courses are offered at this level. In addition, students have to take up extra-departmental courses (now re-designated as Generic Elective Courses). Following the introduction of CBCS from July 2017, students would also study ability Enhancement courses. At the M.A. level the Department offers degree course on Political Science with International Relations. There are four semesters with fourteen core courses and four optional courses to be chosen from twenty-four optional courses offered.

2. The Department has a two-year M.Phil Programme in International Relations. The M.Phil. Course has been semesterised from 2010 with course work during the first two semesters including one course on Research Methodology. M. Phil students have to write their dissertations in the third and fourth semesters. Ph.D Course work, a one-semester and two-course programme, has been introduced in 2010.

## Annual Report 2020-2021

3. Curriculum was last revised in 2016. The CBCS model as per UGC recommendations was adopted at the UG level (and implemented from July 2017). Accordingly, optional courses ('Discipline Specific Elective Courses' of 400 marks) were introduced for the first time for Honours students which included several newly framed courses such as 'Democracy, Citizenship, Nationalism', 'Governance: Dimensions, Issues and Challenges', 'Women, Power and Politics', and 'Politics of Globalization'. A few new courses (such as 'Public Policy and Perspectives of Public Administration' and 'Foreign Policy of India') were also added to the Honours (Core) syllabi. In addition, Generic Elective Courses and Ability Enhancement Courses were also incorporated as per UGC stipulations. Further, a thorough revision and updating of the MA, M.Phil and Ph.D Course Work courses is under way.

4. A one-year P.G. Diploma (Evening) Course Work course on Human Rights and Duties Education had been introduced in 2009-10. It has started with UGC-funding and after five years it was turned into a self-financed course. There are four Theory Papers; students also have to undertake field visits and write dissertations.

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BA	3 years	1 <sup>st</sup> year	74
		2 <sup>nd</sup> year ...	74
		3 <sup>rd</sup> Year	74
MA	3 years	1 <sup>st</sup> year	74
		2 <sup>nd</sup> year	74
MPHIL	2 years	1 <sup>st</sup> Year	24
		2 <sup>nd</sup> Year	24
PH.D	5 years	NA	21

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
8	5	6	17

### Academic Activities of the Department of International Relations (2019-2020)

The research objectives outlined in the CAS II programme of the Department include (a) describing and defining variables/factors that would shape India's foreign and security policy responses to the changing global scenario; (b) pinpointing the trends and directions for reformulating and reinventing India's foreign policy under the new conditions of an increasingly interdependent but fragmented, integrated but diversified and networked global society; and (c) identifying the possibilities that might confront India's foreign policy processes in the near future. Thus, the aim of the project is to look into the dynamics of India's foreign policy in terms of immediate necessities as well as long term trends in the backdrop of multidimensional structural transformation of the world. However, in addition, the teachers in the Department continue to work and publish on other broad areas of the discipline suitable to their preferences and specializations.

## Annual Report 2020-2021

The Department has a major research project on Global South under RUSA 2.0 from 2019 to 2021. This has been successfully completed in March 2021. The **Hariprasanna Biswas India China Cultural Studies Centre** has opened under the aegis of the Department of International Relations. It seeks to cultivate cultural and political relations between India and China. It is fully operational.

#### 4. Research Activities:

**A. Areas of Research Activities:** Global South, Area Studies, Political Theory, International Relations Theory.

#### **B. Major Research Projects:**

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
1. A study on 'Education' as a social security measure in the Tea Gardens of North Bengal and Northeast India—an application of Type II Diplomacy (Under Department of International Relations), University Grants Commission, University with Potential Excellence-II Programme.	Department of International Relations	Prof. Iman Kalyan Lahiri	University Grants Commission, University with Potential Excellence-II Programme.	Completed in December 2020.
2. Swyang Siddha, (Against Women Trafficking)	Individual	Prof. Iman Kalyan Lahiri	UNICEF	Completed in December 2020.
3. Social and Behavioural Change Communication: Raising Community Demands	Individual	Prof. Iman Kalyan Lahiri	UNICEF	Ongoing

#### **C. Doctoral Research Activities**

<b>Number of students awarded Ph.D during the year</b>	<b>Number of Ph.D students registered in the Department</b>
<b>10</b>	<b>50</b>

#### **D. Research Articles Published in Edited Volumes during the year**

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

## Annual Report 2020-2021

**Anindya Jyoti Majumdar**, “The Indian Ocean as a Theatre of Conflict: Past Patterns, Present Trends” in Vivek Mishra and Sarvani Gooptu (eds), *The Regional Great Game in the Indian Ocean and India’s Evolving Maritime Strategy*, KW Publishers, New Delhi, 2020. ISBN 9389137640/9389137644

**Anindya Jyoti Majumdar**, “Geopolitics, Conflicts and Peace” (co-authored) in Anindya Jyoti Majumdar and Shibashis Chatterjee (eds), *Peace and Conflict Studies: Perspectives from South Asia*, Routledge India, 2021. ISBN 9780367540401

**Imankalyan Lahiri**, “Empire or Democracy: Contrasting India’s Foreign Policy in Asia” in Sachin Pardhe (ed.), *India’s Foreign Policy in the 21st Century: Governance and Foreign Policy Imperatives*, Bharti Publications, New Delhi, 2020, pp. 76-97. ISBN: 9789386608239.

**Imankalyan Lahiri** and Anuja Saha, “Tea Gardens in the North East India: A Case Study of Assam with Special Reference to Golaghat District,” in Imankalyan Lahiri (ed.), *Sustenance and Development in the Tea Gardens of Assam and North Bengal*, Bharti Publications, New Delhi, 2020. pp. 32-38. ISBN: 9389657636, 9789389657630

**Imankalyan Lahiri**, “Tea Gardens of North Bengal: Case Study of Select Tea Gardens of Jalpaiguri and Alipurduar District with Special Reference to Primary Education”, in Imankalyan Lahiri (ed.), *Sustenance and Development in the Tea Gardens of Assam and North Bengal*, Bharti Publications, New Delhi, 2020, pp. 15-32,

**Imankalyan Lahiri**, "Look East Policy and India's North East: Issues and Perspectives in Tridib Chakrabarti and Shibashis Chatterjee (eds.), *Bharti Publications, New Dehi, 2020*, pp. 264-278. ISBN: 9389657636, 9789389657630

**Imankalyan Lahiri**, "Methodology of the Study of the Basic Problems of the Tea Gardens of North Bengal and Assam, in Imankalyan Lahiri (ed.), *Sustenance and Development in the Tea Gardens of Assam and North Bengal*, Publications, New Delhi, 2020, pp.1-14. ISBN: 9389657636, 9789389657630

**Partha Pratim Basu**, *The Maoist Movement: ‘India’s Gravest Internal Security Threat’*, in Anindya Jyoti Majumdar and Shibashis Chatterjee eds. *Peace and Conflict Studies: Perspectives from South Asia*, Oxon: Routledge, 2020.

**Shibashis Chatterjee** (Co-author Sulagna Maitra), “Identity, Conflicts and Security”, in Anindya Jyoti Majumdar and Shibashis Chatterjee (eds.), *Peace and Conflict Studies: Perspectives from South Asia*, Routledge (Taylor and Francis Group), 2020, pp. 97-119.

**Kakoli Sengupta**, “Asean’s Role in Combating Security Challenges: An Appraisal” in *Cooperation and Conflict in Contemporary Southeast Asia: Global Powers, ASEAN and India* (ed) Tridib Chakraborti, Shibashis Chatterjee, Bharti Publications, New Delhi, 2020.

**Kakoli Sengupta**, ‘India US Strategic Relations: Assessing Potential for the Maritime Domain’ in *The Regional Great Game in the Indian Ocean and India’s Evolving Maritime Strategy* (ed) Vivek Mishra and Sarvani Gooptu, KW Publishers Pvt Ltd, Daryaganj, New Delhi, 2020.

**Sukanya Ray**, Swami Vivekananda : ‘Analysis of His Thoughts on Human Development in India’, *Prabuddha Bharata* ((Awakened India), Vol. 126, January, 2021[(Special issue in celebration of the 125<sup>th</sup> year of the publication of Prabuddha Bharata [(Awakened India), a monthly journal of the Ramakrishna Math and Mission published since 1896]. [ISSN:0032-6178]

## Annual Report 2020-2021

**Kamran M.K Mondal** (Co-Author Sk. Golam), Samajik Gobeshona Poddhotir Bhumika (2021), Masum, Anindya Prokash, Dhaka, February 2021, ISBN - 9789849513094.

Sreya Maitra (co-author **Shibashis Chatterjee**), “Federalization of Indian Foreign Policy: Recent Trends”, in Johannes Dragsbaek Schmidt (eds.) Shantanu Chakrabarti and The Interface of Domestic and International Factors in India’s Foreign Policy, Routledge (Taylor and Francis Group) U.K. ISBN: 9780367641320.

**F. Research Articles Published in Conference Proceedings during the year:**

**(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year):**

**Partha Pratim Basu**, Religion, Politics and Secularism: The Gandhian Legacy, in Sandipan Sen and Indrashis Banerjee eds. Revisiting Gandhi in Our Times, Howrah: Ramakrishna Mission Vidyamandira, 2021.

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**A. Books/Monographs Published:**

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Anindya Jyoti Majumdar and Shibashis Chatterjee</b>	Peace and Conflict Studies: Perspectives from South Asia	Routledge India	9780367540401	2021
<b>Imankalyan Lahiri &amp; Sachin Pardhe</b>	India’s Foreign Policy in the 21st Century: Governance and Foreign Policy Imperatives,	Bharti Publications, New Delhi	9789386608239	2020
<b>Tridib Chakraborti and Shibashis Chatterjee (eds.)</b>	Cooperation and conflict in Contemporary Southeast Asia Global Powers: ASEAN and India	Bharti Publications, New Delhi	978-93-89657-68-5	2020
<b>Co-edited with Anindya Jyoti Majumdar,</b>	Peace and Conflict Studies: Perspectives from South Asia, Routledge	Taylor and Francis Group	ISBN 9780367540401	2020

**B. Books/Monographs Edited:**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Imankalyan Lahiri</b>	Sustenance and Development in the	Bharti Publications, New Delhi.	9389657636, 9789389657630	2020

### Annual Report 2020-2021

	Tea Gardens of Assam and North Bengal			
--	---------------------------------------	--	--	--

#### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
<b>Urbi Das</b>	Faculty Induction Program	UGC-HRDC Jadavpur University, Kolkata	21-12-2020 to 28-01-2021

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Anindya Jyoti Majumdar</b>	Invited Talk	“Politics in Pandemic Times”,	Gokhale Memorial Girls’ College, Kolkata	22 June, 2020
	Invited Talk	“India-China standoff at LAC”,	Prabhu Jagatbandhu College, Howrah and Chittaranjan College, Kolkata,	4 August, 2020
	Invited Talk	“Political Relevance of the South Asian Space”	Women’s Christian College, Kolkata,	20 August, 2020
	Invited Talk	“Contingent Realism and Contemporary Great Power Politics”,	Vidyasagar Metropolitan College,	27 August, 2020
	Webinar; Invited Talk	“Contemporary Trends in India-China Relations”	Maharani Kasiswari College, Kolkata	18 August, 2020
	Webinar: Invited Talk	“The China Factor in India’s Foreign Policy towards Nepal and Bhutan”,	Uluberia College and Vidyanagar College, Kolkata,	19 October, 2020
<b>Shibashis Chatterjee</b>		“Indian Foreign Policy: From Post-Colonial State to an Aspiring power in World Politics,	Department of Political Science and IQAC, Vivekananda	17 July 2020.



**Annual Report 2020-2021**

			College for Women,	
Keynote Address	(Co-speakers: Chair and Speaker: Dr. Rudra Prasad Pradhan (BITS Pilani, Goa, Panel Discussion: Prof. Sarah Hilaly, Prof. Delwar Hussain, Dr. Sujit Datta).			Webinar 27 July, 2020
Special Lecture	“Indian foreign policy: systemic and ideational concerns” Special Lecture Series on “Indian Foreign Policy: Regions, History and Identity”	Department of Political Science, Purash Kanpur Haridas Nandi Mahavidyalaya,		1 August, 2020
Discussion	“India and the Neighbourhood”, In Conversation with Prof. S.D Muni and Prof. Shibashis Chatterjee	Asian Confluence		9 August, 2020
Invited speaker	“Into the Past”	Organized by Voyages, Presidency University		7 September, 2020
Invited Speaker	JAIR Foundation Day Lecture 2020 titled 'Power, otherness and departure: ethical and political conundrums in International Relations theory'			19 September, 2020
Invited speaker	Power, Market and Criticality: Contrasting Imaginations of the International Order	Department of Political Science, M.S University of Baroda		16 October, 2020

**Annual Report 2020-2021**

		and a Search for Inclusivity”		
<b>Abdul Matin</b>	Invited Lecture	‘Seven Decades of India’s Democracy: Retrospect’s and Prospects’, organized by the Department of Political Science,	Hiralal Bhakat College, University of Burdwan	20 August, 2020
	Invited Lecture	‘Making Sense of India’s Constitution and its values’	Institute Induction Program Cell, Aliah University, Kolkata	5 November, 2020
	Invited lecture in Panel Discussion	Muslims and OBC politics in West Bengal’	Department of Political Science, Presidency University, Kolkata	3 March, 2021
	Panel Discussant	Minorities of Bengal at Crossroads	Justice K.M Yusuf Memorial Trust, Kolkata at Iran Society Hall, Kolkata.	22 January, 2021
	Session Chair	Two-days national webinar on “Narratives of Faith: Devotional Songs and Poetry of the Multicultural Societies of Bengal”	organized by the Department of English, Jadavpur University	17-18 February, 2021
	Session Chair	Jadavpur University Women’s Conclave (JUWC)	Jadavpur University in collaboration with Asoka University and Indian Association for Women Studies, New Delhi	4-5 March, 2020
<b>Ishani Naskar</b>	Resource Person	“China India in Power Competition in the Time of Vaccine Revolution” in international	International Development and Security Cooperation, the Philippines	5 March, 2021

**Annual Report 2020-2021**

		webinar on Hegemonic Transition: a Secured World and Vaccine Revolution, Digital Transformation and Economic Competition		
<b>Kakoli Sengupta</b>	Invited Lecture	'Peace and Conflict'	3rd Induction Program in online mode organized by the UGC Human Resource Development Centre, Doctor Harisingh Gour Vishwavidyalaya, Sagar, Madhya Pradesh, India 25 November to 31 December, 2020	22 December, 2020
<b>Kakoli Sengupta</b>	Invited Lecture	'Human Rights' at the 1st Faculty Induction Programme for the Teachers and Librarians of Universities and Colleges on	Organized by the UGC- Human Resource Development Centre, Jadavpur University from 21 December, 2020 to 28th January, 2021 in online mode.	15 January, 2021
<b>Kakoli Sengupta</b>		'Human Rights' at the 1st Faculty Induction Programme for the Teachers and Librarians of Universities and Colleges on	Organized by the UGC- Human Resource Development Centre, Jadavpur University from 21 December, 2020 to 28th January, 2021 in online mode.	19 January, 2021
<b>Kakoli Sengupta</b>	Session Chair	Technical session on 'Lockdown, Domestic Violence and Police Brutality' at One Day National	Organized by Manavadhikar Samajik Manch (MASM), New Delhi	4 July, 2020

**Annual Report 2020-2021**

		Webinar on 'The Novel COVID-19 : The Human Rights Issues in India'		
<b>Kakoli Sengupta</b>	Session Chair	Technical session on 'Covid-19 and Gender Issues' at One Day International Webinar on 'South Asian Democracy in the Covid-19 Era: Challenges and Way out'	Jointly organized by Dept. Of Political Science, Kanchrapara College, West Bengal, India and Society for Promotion of Activities for Social and Human Development (SPARSH), New Delhi and Kolkata	17 October, 2020
<b>Kakoli Sengupta</b>	Session Chair	'Violence towards Women- How long to reach the desired freedom'	Organized by Women Studies Research Centre, University of Calcutta, in online mode	29 January, 2021
<b>Partha Pratim Basu</b>	Invited Lecture	PG Diploma Course on Human Rights and Duties Education, Department of	International Relations, Jadavpur University	April, 2020
<b>Partha Pratim Basu</b>	Invited Lecture	'Analysis of Texts', Research Methodology Workshop,	Jadavpur Association of International Relations, Zoom	10 July, 2020
<b>Partha Pratim Basu</b>	Invited Lecture	'New Media, Democratic Governance and Politics: Some Emerging Issues',	Department of Political Science, St. Xavier's College, Teams	17 October, 2020
<b>Partha Pratim Basu</b>	Invited Lecture	'Rammohun Roy and the Women's Question'	M.Phil Course work, Kalyani University, Google Meet	13 January, 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
---------------------------------	---------------------------	---	--------------	-----------------

**Annual Report 2020-2021**

<b>Prof. Iman Kalyan Lahiri</b>	The condition of Educational System in India during the COVID 19 Situation	International Online Conference on The Methods of Teaching and Learning used by Educational Institutions During the Period of Lock Down Due to COVID 19 Pandemic.	Canada	8 May, 2020
<b>Kakoli Sengupta</b>	Paper presenter	'Covid-19 and the plight of Migrant Workers in India : A Humanitarian crisis' One Day National Webinar on 'The Novel COVID-19 : The Human Rights Issues in India	Organized by Manavadhikar Samajik Manch (MASM), New Delh	4 July, 2020
	Paper Presenter	'India's Covid - 19 Diplomacy: Implications for India and the World' at One Day International Webinar on 'South Asian Democracy in the Covid-19 Era: Challenges and Way'	Jointly organized by Department of Political Science, Kanchrapara College, West Bengal, India and Society for Promotion of Activities for Social and Human Development (SPARSH), New Delhi and Kolkata	17 October, 2020

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

<b>Number of students enrolled in higher education</b>	<b>Programmes graduated from</b>	<b>Programmes admitted to</b>	<b>Institutes admitted to</b>
120	MA in IR	M.Phil, PhD and B.Ed	Jadavpur University, London School of Economics and Political Science,

## Annual Report 2020-2021

			Sussex, King's College, London and Others.
--	--	--	--

Name of the Examination	No. of students selected/ qualified
NET	20
SET	10
GRE	25
TOFEL	50
Civil Services	02
State Government Services	02

### LIBRARY & INFORMATION SCIENCE

Phone: 033-2457-2264

033-2414-6145

H.O.D : Prof. Subarna Kr. Das

E-mail: skc\_judlis@yahoo.com

#### 1. Vision and Mission of the Department :

The Department of LIS is renowned for its originality nationwide and serves as an exemplary model for other Universities as well. The Department of Library & Information Science, Jadavpur University was established in 1964. While the Department provides a hospitable environment for every kind of research, some new academic fields created by it have had a significant impact on social sciences and humanities research in India. The Department imparts knowledge on the varied aspects of modern trends on LIS study & teaching for preparing hi-tech library and information professionals. The Department has introduced an innovative syllabus, with equal emphasis on various branches of LIS. Such a syllabus along with the adoption of new methods of teaching, marked a wide departure from the practices of other universities. The main objectives/Mission of this department are as follows:

1. To create a better understanding among LIS community & LIS Schools of Indian Universities.
2. To prepare high quality LIS professional in the changing context of digital environment
3. To become a nodal centre for research in the Thrust Area: Knowledge organization, Information Retrieval & Digital Library
4. To develop LIS research & development activities on various branches of the disciplines

## Annual Report 2020-2021

### 2. Academic Activities:

#### A. Programmes Offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BLISc	1		60
MLISc (Day)	1		19
MLISc (Evening)	2	1 <sup>st</sup> Year	19
		2 <sup>nd</sup> Year	19
MPhil	2		11
Ph.D			2

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
4			4

### 4. Research Activities:

#### Prof. Sunil Kumar Chatterjee:

1. Ghosh, S. S., Das, S., & Chatterjee, Sunil Kumar. (2020). Human-centric Faceted Approach for Ontology Construction. Knowledge Organization, 47(1), 31-44. ISSN 0943-7444. <https://doi.org/10.5771/0943-7444-2020-1-31>
2. Chatterjee, Apala, Mahato, Shampa & Chatterjee, Sunil Kumar. Deriving Pertinent Knowledge through Sentiment Analysis and Linking with Relevant Documents. SRELS Journal of Information Management. Vol.58(5), October, 2021

#### Prof. Udayan Bhattacharya:

1. Bhattacharya, U. & Sarkar, A. (2020). Social Tags versus Controlled Vocabularies: A Comparative Metadata Analysis, SRELS Journal of Information Management, 57(5), 259-264.
2. Bhattacharya, U. Sarkar, A. & Bhattacharya, U. (2021). Social Cataloguing Sites: An Analysis through Webometric Approach. Library Philosophy and Practice (e-journal)
3. Bhattacharya, U. Sarkar, A. & Bhattacharya, U. (2021). Controlled Vocabularies vs Social Tags: A Metadata Analysis of Book Catalogue in Mathematics. IASLIC Bulletin, 66(1), 35-42
4. Bhattacharya, U. Das, A. and Bhattacharya, U. (2021). Nobel Laureate Abhijit Vinayak Banerjee: A Scientometric Portrait, 1987-2019. Library Philosophy and Practice (e-journal). 4806. <https://digitalcommons.unl.edu/libphilprac/4806>
5. Bhattacharya, U. Ghosh, Chaitali and Bhattacharya, Prof. Udayan, "REVISION AND QUALITY ANALYSIS OF LIBRARY AND INFORMATION SCIENCE CONCEPTS IN WIKIPEDIA" (2021). Library Philosophy and Practice (e-journal). 5966. <https://digitalcommons.unl.edu/libphilprac/5966>

## Annual Report 2020-2021

### Prof. Subarna Kumer Das

1. DAS SUBARNA KUMAR, BHATTACHARYA P & SINHA MP (2021): Implementation of Vocational Training Program under State Board Secondary Level schools in Kolkata: Challenges and Opportunities. (UGC Care Listed & Scopus Indexed). International Journal of All Research Education & Scientific Methods, (IJARESM), Volume 9, Issue 5, May – 2021.), ISSN No: 2455-6211
2. DAS SUBARNA KUMAR, BHATTACHARYA P & SINHA MP (2021): IMPLEMENTATION OF ONLINE VOCATIONAL TRAININGPROGRAMMES UNDER CSS-VSE IN WEST BENGAL –CHALLENGES AND OPPORTUNITIES. Journal of Xi'an University of Architecture & Technology. (UGC Care Listed & Scopus Indexed). Volume XIII, Issue 5, 2021. ISSN No: 1006-7930
3. DAS SUBARNA KUMAR, BHATTACHARYA P & SINHA MP (2021): Implementation of IT & ITeS sector under Vocational Education in West Bengal. Journal of Information and Computational Science. (UGC Care Listed & DOAJ Indexed) Volume 11 Issue 9 – 2021. ISSN: 1548-7741
4. DAS SUBARNA KUMAR, BHATTACHARYA P & SINHA MP (2021): Implementation of Electronics sector under CSS-VSE in West Bengal: An Analytical Study. ZeichenJournal. (UGC Care Listed & Scopus Indexed). Volume 7, Issue 9, 2021. A ISSN No: 0932-4747
5. DAS SUBARNA KUMAR & NASKAR JAYITA (2020). Information Need about Agriculture and Animal Husbandry among the Fishermen of Kakdwip Sub-division in South 24 pgs District: A study. Shodh Sarita. (UGC Care Listed & Scopus Indexed). Volume 7 Issue 26 April to June 2020. ISSN - 2348 – 2397
6. DAS SUBARNA KUMAR, BHOWMICK S, RATH D.S & MISHRA SANTANU (2020)..Changing Role of Library to Combat the COVID-19 ERA. (Scopus Indexed & UGC Care Listed). IJRDO- Journal of Health Sciences & Nursing. Volume-6, Issue N0-8, 25 August, 2020.ISSN:2456-298X
7. DAS SUBARNA KUMAR & DUTTA SONALI (2021). Nobel Laureates in Asia (1901-2019): an Analytical study (Accepted for Publication). RBU Journal of Library & Information Science, Vol 23, 2021 (UGC Care Listed).

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

1. DAS SUBARNA KUMAR (2021). Dui Banglar Sundarbaner Jibika Nirbhar Sanskriti (In Bengali). Published in “Dwipobhumi Sundarban” Edited By Barendu Mondal. Kolkata: Chaya, 2021, ISBN 978-81-942772-6-2 (Book Chapter)
2. DAS SUBARNA KUMAR & TUDU MONOJ (2021). Educational Information Needs of Kharia Community at Tangasole Village in Mayurbhanj District of Odisha published in Librarianship in Changing Environment (Festschrift Volume in honour of Professor Narendra Lakhar. Edited By Dhruvajit Das and Others. Guwahati: Assam College Librarians Association, 2021 ISBN 978-81-920220-3-1 (Book Chapter)

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### D. Refresher Courses Organized:

(Name of the Teachers, Title of the Course, if any, Duration, Place):

Title of the Course	Name of the Coordinator(s)	Place	Date
MOOCs	Professor Subarna Kumar Das	Kolkata	February-March, 2021



## Annual Report 2020-2021

### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
Udayan Bhattacharya	Faculty Induction Programme	Jadavpur University	18 - 20 February, 2021
Udayan Bhattacharya	Faculty Induction Programme	Jadavpur University	2 and 9 March, 2021
Udayan Bhattacharya	UGC- HRDC Sponsored Refresher Course	Savitribai Phule Pune University	15 February, 2021
Udayan Bhattacharya	UGC- HRDC Sponsored Refresher Course	Gauhati University	4 January, 2021
Subarna Kumar Das	Faculty Induction Programme	Jadavpur University	February-March, 2021
Subarna Kumar Das	Faculty Induction Programme	Jadavpur University	March, 2021
Subarna Kumar Das	MOOCs	Jadavpur University	February-March, 2021
Subarna Kumar Das	UGC- HRDC Sponsored Refresher Course	DLIS and UGC-HRDC, Gauhati University	January, 2021

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Professor Udayan Bhattacharya	Invited lecturer	Open Resources in Scholarly Literature- Role in LIS Education	University of Calcutta	
Professor Subarna Kumar Das	Invited Speaker	Use of Public Library During Pandemic Situation	LLA, Cooch Behar	

### 6. Major Achievements of the Department during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies:

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place

## Annual Report 2020-2021

<b>Professor Subarna Kumar Das</b>	Sarvepalli Radhakrishnan Best Education Excellence Award	AIHSAYA, World Healing Society Foundation and Diya Social Foundation	Delhi
--	---	--	-------

### PHILOSOPHY

Phone: 033-2457-2358/2252

H.O.D: Prof. Prayash Sarkar

Prof. Aparajita Mukhopadhyay (since 2.11.2020)

Email : hod.philosophy@jadavpuruniversity.in

#### 1. Vision and Mission:

Since the time of its foundation, Jadavpur University has strived to integrate the aspirations of a modern nation with the nationalist ideals of the Indian Freedom Movement. Remaining true to this vision the Department of Philosophy, too, has always endeavoured to offer its students the best of both the traditions – Indian and Western. While updating its curriculum at regular intervals, the Department of Philosophy has never lost sight of this original vision.

Every academic department has to face the challenge of incorporating the emerging areas of the discipline without relegating its heritage to obsolescence. The Department of Philosophy has tried to meet this challenge by introducing the more traditional and foundational areas of the discipline at the undergraduate level while presenting the more specialized and contemporary branches at the post-graduate and the M.Phil. levels. Being part of a unitary university that offers continuous training to students from the undergraduate to the doctorate level, the department always aimed at designing an integrated curriculum, which would preclude any overlap between the various programmes offered by the department. The syllabi for the undergraduate, the postgraduate and the M.Phil. levels include both compulsory and optional papers. While the compulsory papers aim at giving an extensive and comprehensive view of the subject matter, the optional papers are designed to impart an intensive and specialized knowledge of the different branches of Philosophy depending on individual choices and interests. All schools of Indian Philosophy are taught at various levels, but the department has special expertise in Nyāya, Vedānta, Buddhism and contemporary Indian Philosophy. In like manner, the students get exposure to all major schools, traditions and trends of Western Philosophy, but the teachers of the department have special expertise in Logic, Analytical Philosophy, Epistemology, Metaphysics, Philosophy of Mind, Philosophy of Cognitive Science and Ethics.

## Annual Report 2020-2021

The department has always believed that intensive and specialized knowledge of the different branches of Philosophy, both Eastern and Western, cannot be imparted to the students unless the students have first-hand acquaintance with the original texts of both the traditions. Accordingly a number of original Sanskrit and English texts are included in the syllabi in order to familiarize the students with the best minds of the East and the West.

The department also believes that a university does not merely impart knowledge, it also generates knowledge. The various courses are, therefore, designed not merely to disseminate information but to enhance the thinking ability of the students. The department is fully aware of the fact that a student will not be equipped for further research unless she has the ability to think critically. With a view to enhancing the thinking skills of the students a Skill Enhancement Course on “Critical Thinking” is introduced in the new syllabus for the undergraduate programme.

Recognizing the role of Philosophy in matters related to Research Methodology, the department has introduced an extensive course in Research Methodology at the M.Phil. and Ph.D. levels, which not only fulfills the need of imparting knowledge of research methodology to the budding researchers but also caters to the more fundamental aim of addressing methodological and metaphilosophical issues regarding the nature of philosophy and also regarding the relation of philosophy to other branches of human inquiry.

In recent past the Choice Based Credit System is introduced at the undergraduate level with a view to offering more freedom to the students in their choice of courses. This freedom not only nurtures multifarious abilities and interests, but also enables the students for interdisciplinary research.

The department also recognizes that a proper ambience for research is necessary for developing and enhancing the research skills of the students. With this end in view, the students of the postgraduate level are required to write seminar papers or term papers and research scholars’ seminars are organized at regular intervals. Apart from these seminars, a research scholars’ meet is held every week where the scholars present original papers before other research scholars and the teachers of the department.

The teachers of the department, too, are actively engaged in various individual and group research projects. These research projects have culminated in the publication of a formidable number of books and anthologies based on original research in various branches of philosophy. The department has been recognized as the Centre of Advanced Study in Philosophy by the University Grants Commission for the last three decades. The CAS programme produced a large number of research publications not merely in the mainstream branches of Philosophy but also in various emerging and multidisciplinary areas such as Gender Studies, Cognitive Science and Comparative or Fusion Philosophy. A number of research centres are attached with the department promoting research in multifarious branches of Philosophy.

The Department of Philosophy of Jadavpur University with its rich tradition and young aspirations looks forward to meeting the challenges arising out of a fast-changing society.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Bachelor of Arts (Honours)	03	1 <sup>st</sup> year	86
		2 <sup>nd</sup> year	75

## Annual Report 2020-2021

		3 <sup>rd</sup> year	61
Master of Arts	02	1 <sup>st</sup> year	72
		2 <sup>nd</sup> year	67
Master of Philosophy	02	1 <sup>st</sup> and 2 <sup>nd</sup> year	19 (for each year)
Doctor of Philosophy	05		Nil

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
15	03	04	20

### 4. Research Activities:

#### A. Area of Research Activities (Broad areas):

##### Mind, Reality and Morals: Exploring Alternative Perspectives:

Name of the Project	Departmental/Individual	Funding Agency
Feminism and Philosophy	Group	CAS
Mind and Embodiment	Group	CAS
Situating Contemporary Indian Thinkers in the Context of Man, World and Morality	Group	CAS
Ethics and Culture	Group	CAS
Development of Buddhist Logic and its application to Metaphysics and Epistemology	Prof. Madhumita Chattopadhyay	CAS
The Contribution of Āryadeva in the development of Mādhyamika Thought	Prof. Madhumita Chattopadhyay	CAS
Prāmānyavādasamikṣā	Prof. Rupa Bandyopadhyay	CAS
Nāstik Darśane Jñānatattva	Prof. Gangadhar Kar	CAS
Philosophy and the Body	Prof. Atasheer Chatterjee Sinha	CAS
Issues in Indian Epistemology	Prof. Proyash Sarkar	CAS
Moral responsibility: Some Relevant Issues	Prof. Aparajita Mukhopadhyay	CAS
Conditions for becoming a Democratic State	Prof. Samar Kumar Mondal	CAS
Exploring the Philosophical Thought of Ramendrasundar Trivedi	Prof. Dipayan Pattanayak	CAS
Empirical Methods in the Philosophy of Mind: A Metaphilosophical Study	Prof. Maushumi Guha	CAS
Time, Temporal Passage and their Cognitive Impenetrability	Dr. Maitreyee Datta	CAS
Tradition, Culture and Gender Relations	Dr. Gargi Goswami	CAS
Bauddha Tarkabhaṣā by Mokṣā Karagupta	Dr. Gopinath Mondal	CAS

## Annual Report 2020-2021

Self Awareness and Subjectivity	Prof. Madhumita Chattopadhyay & Prof. Madhucchanda Sen	CAS
Advaitasiddhi with Vālabodhini	Prof. Rupa Bandyopadhyay & Dr. Preetam Ghoshal	CAS

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
03	Nil

### D. Research Articles Published in Journals during the year: (International/National Peer-reviewed journals):

**(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)**

**Atashee Chatterjee Sinha.** The Crisis due to Coronavirus Pandemic: Some Ethical Concerns. The Journal of Humanities and Social Sciences, No.17, ISSN 0973-8737. 2020

**Tamoghna Sarkar,** ‘Gopinath Bhattacharyer Darshanik Chintadhara: Ekti Sabichar Ruparekha’, Aloconacakra, Issue 49, pp. 24-41. ISSN 2231-3990. 2020.

### E. Research Articles Published in Edited Volumes during the year:

**(Name of a uthors, Title of the article, Title of the Book, Name of the Editors (eds.), page no. Name of the Publisher, ISBN/ISSN No., Year):**

**Madhumita Chattopadhyay.** ‘Rahul Sankrityayan’. Bloomsbury Encyclopedia of Philosophers, Bloomsbury, London (In press)

**Soumitra Basu.** ‘Religious Intolerance and the Prospect of Inter-religious Dialogue’, The Nature of Reality: Philosophical Discourses on Language, Religion and Culture. J. Saha, J. Ghosh. P. Jha (eds). pp. 45-54. Levant Books, India, Kolkata. ISBN: 978-93-88069-56-4. 2020.

**Gangadhar Kar.** ‘The Mystery of Sattā (Existence)’, Vyakarana Darsana in Indian and Western: Philosophy of Language, Pradyot Kr Mukhopadhyay and Kamalesh Datta Tripathi (eds), pp. 79-94. Indira Gandhi National Centre for the Arts, New Delhi. ISBN: 9788173055911.2020

**Sashinungla,** ‘Thinking, Looking and Acting: Beyond East and Southeast to the ‘Other Asia’’, The Interface of Domestic and International Factors in India’s Foreign Policy, J. D. Schmidt and S. Chakrabati (eds.). pp. 249-264. Routledge: London. ISBN 9780367641320. 2021.

**Sashinungla,** ‘Toward a Feminist Ethics of Shame’, Shame, Gender Violence and Ethics: Terrors of Injustice, L. Skof and S. Hawke (eds.), pp. 69-90. Lexington Books (an imprint of the Rowman & Littlefield Publishing Group, Inc.): Lanham – Boulder-New York- London, ISBN. 978-1-79360467-5.2021.

**Sashinungla,** ‘India’s Foreign Policy and Domestic Compulsions: Theorizing the Margins of Exclusion’, The Interface of Domestic and International Factors in India’s Foreign Policy, J. D. Schmidt and S. Chakrabati (eds.), pp. 55-73. Routledge: London, ISBN 9780367641320. 2021.

**Maitreyee Datta,** ‘Classical Indian Dialectics: Refuting the Reality of Temporal Passage in Mūlamadhyamakārika and Khandanakhandakhādyā, Asian Philosophical Texts: Exploring the

## Annual Report 2020-2021

Hidden Sources, T. Morisito and R. Pasca (Eds.), pp. 157-172. No.1, Mimesis International, Milan. ISBN. 9788869772245. 2020

**Gargi Goswami**, ‘Culture, Religion and Gender Rights: Is there a meeting point?’, The Nature of Reality: Philosophical Discourses on Language, Religion and Culture, Jyotsna Saha, Jhadeshwar Ghosh, Purbayan Jha (eds.), pp. 126-139 Levant Books, ISBN 9788193607626, 2020

Tamoghna Sarkar. ‘The Concept of Identity in Advaita Vedānta’ in Vedānta, Science and Technology, G.N Jha, B.R Singh, S. Sengupta (Eds.), pp. 56-74. D.K Printworld, ISBN 978-81-246-0947-7. 2020.

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year

#### A. Books/Monographs Published:

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Gangadhar Kar	Nil Akasher Niche	Maha Bodhi Book Agency	978-93-84721-75-6	2021
Preetam Ghoshal	Svaprakāśatv Asamīkṣā: Jñāner Svaprakāśatve Lakṣaṇa o Pramāṇa Vicāra	Maha Bodhi Book Agency	9789384721794	2020

#### B. Books/Monographs Edited:

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Soumitra Basu & Maitreyee Datta	Approaches to the Real in Contemporary India	Suryodaya Books	978-81-936076-4-0	2021
Gopinath Mondal	Philosophical Queries	Cognition Publication	978-93-86529-43-5	2021

#### C. Seminar/Workshop/Conference/Symposium Organized:

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
State level seminar on ‘Revisiting the Vision of Mahatma Gandhi’	Jhuma Chakraborty and Gargi Goswami	NA	Online	17 December. 2020
National level Young Scholars’ Meet	Madhumita Chattopadhyay & Gargi Goswami	NA	Online	12 March, 2021
National seminar on ‘Mind and Reality’	Madhumita Chattopadhyay & Gargi Goswami	NA	Online	13 & 14 March, 2021

### Annual Report 2020-2021

World Philosophy Day Celebration Topic: 'Mind, World and Values'	Proyash Sarkar and Madhucchanda Sen	NA	Online	22 March, 2021
National seminar on 'Culture Beyond Modernism: The Continental Canvas'	Atashee Chatterjee Sinha & Maitreyee Datta	NA	Online	25 March, 2021
A seven day E-Workshop on 'Mind, Consciousness and Harmony of Virtues' (in collaboration with Centre for Aurobindo Studies)	Jhuma Chakraborty & Rubai Saha	NA	Online	25 to 31 March, 2021
A seven day UGC sponsored short-term course on 'Social & Political Philosophy of Buddhism' (organized by Centre for Buddhist Studies)	Gargi Goswami	NA	Online	12 to 19 January, 2021
One day State Level Webinar on Mental Health Issues in the Context of COVID-19	Samar Kumar Mondal	NA		03 July, 2020
National Level Webinar on Mental Health Related Issues	Samar Kumar Mondal	NA		26 September, 2020
National Level Webinar on Pandemic Situation : Its Impacts on Society	Samar Kumar Mondal	NA		24 January, 2021
Seven days STC Stress Management	Samar Kumar Mondal	NA		2-8 February, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Event	Place	Duration
<b>Rupa Bandyopadhyay</b>	Lecture on "Indian Theories of Sentence Meaning"	Series of lectures entitled "Beyond the Classroom" organized by the Arts Faculty Students' Union, Jadavpur University	Online	1 hour 16 May, 2020
	Two lectures entitled "On Representations and Representational Contents"	Series of lectures on "The Philosophy of Mind and Related Topics" organized by the Philosophy of Mind Reading Group, Department of Philosophy, Jadavpur University	Online	1 hour each 6. & 8 August, 2020
	Lecture on "The Advaita Vedānta	Course on "Fundamental Concepts of Indian Philosophy" organized by	Online	1 hour 20 January, 2021

**Annual Report 2020-2021**

	System: An Introduction’	the Ramakrishna Mission Institute of Culture on 2		
	Online lecture on “The Concept of God in Indian Philosophy”	Course on “Fundamental Concepts of Indian Philosophy” organized by the Ramakrishna Mission Institute of Culture	Online	1 hour 9.2.2021.
<b>Madhumita Chattopadhyay</b>	Four lectures on “Buddhist Epistemology and its Development”	Lecture-series organized by the Center for Buddhist Studies, Jadavpur University.	Online	1 hour each August, 2020
	two lectures on “Concept of kingship and the principles of state governance” and “Concepts embedded in the Socio-Political Thoughts of Buddhism”	UGC-sponsored Short Term Course on “The Socio-Political Thoughts of Buddhism” organized by the Center for Buddhist Studies, Department of Philosophy, Jadavpur University	Online	1 hour each January, 2021
<b>Soumitra Basu</b>	‘Duhsomay O Rajnaitik Naitikata’	Series of lectures on ‘Duhsomoyer Tattva Bhavana’ organized by Sundarban Mahavidyalaya, Kakdvip	Online	1 hour 20 August, 2020
	‘Swaraj In Ideas: Situating Krishnachandra Bhattacharya in Present Indian Scenario’	ICPR sponsored lecture organized by Uluberia Collge, West Bengal, on 20 February, 2020	Online	1 hour 20 February, 2021
<b>Gangadhar Kar</b>	“Tadvidhi Pranipatyena Praniprasena Sevayah”	Series of lectures organised by Jadavpur University Students’ Union	Online	1 hour 05 September. 2020
	“Matrirupena Sansthita”	Series of lectures organised by Jadavpur University Students’ Union	Online	1 hour 11 November, 2020
<b>Atashee Chatterjee Sinha</b>	“Relationships and styles of love”.	Workshop organized by an NGO (Mental Health Organization) ECHO located at Bhowanipore, Kolkata	Online	1 hour 09 May, 2020



### Annual Report 2020-2021

	Can we overcome gender inequality? A feminist philosophical perspective.	Refresher Course in “Gender and Social Transformation” (online mode), organized by UGC-Human Resource Development Centre, The University of Burdwan	Online	1 hour 19 September, 2020
	“Universal human values”	Departmental Induction Programme of the 1st Year Students of 2020-21 Session, Department of Computer Science and Engineering, Jadavpur University.	Online	1 hour 15 January, 2021
	“Ethics of Care and Empathy-Few Basic Concepts”	Web-talk organized by Department of Philosophy, Ramakrishna Sarada Mission Vivekananda Vidyabhavan in collaboration with the Department of Philosophy (UG BOS) West Bengal State University	Online	1 hour 05.March, 2021
<b>Proyash Sarkar</b>	3 (three) virtual Peer lectures on "John Locke and his Philosophy"	Online Peer Lecture Series organized by Department of Philosophy, Barasat Government College, W.B.	Online	1 hour each August, 2020
	‘Alston on Speech Act’	Special lecture at the Department of Philosophy, West Bengal State University.	Online	1hour 06 February 2021
<b>Madhucchanda Sen</b>	Three lectures on “Critical Thinking”	Series of lectures organized by the Department of Philosophy and Internal Quality Assurance Cell (IQAC), East Calcutta Girls’ College, Kolkata.	Online	1 hour each 17, 18 and 19 June, 2020
	“Mind and World—The Constitutive Relation”	Special lecture at Indraprastha Institute of Information Technology Delhi (IIITD)	Online	04 November, 2020

**Annual Report 2020-2021**

	“Research Methods and Ethics”	Short Term Course on “Research Methodology: Research Publications and Ethics” organized by the Human Resource Development Centre, Mizoram University	Online	1 hour 04 November, 2020
	“A Nice Derangement of Epitaphs ---Radical Interpretation and Communication”	A course delivered at Refresher Course on Literary Studies and the Question of Interdisciplinarity at Department of Comparative Literature, Jadavpur University, Kolkata	Online	1 hour 19 January, 2021
<b>Dipayan Pattanayek</b>	Tagore’s Quest for A True Religion	Special lecture organized by NSS units Burdwan Raj College	Online	1 hour 18 May, 2020
	Application of Yoga in Attainment of Ataraxia	ICPR sponsored lecture-series organized by Burdwan Raj College	Online	1 hour 22 June, 2020
	Yoga and the quest for wellbeing	ICPR sponsored lecture-series organized by Bankura Zila Saradamani Mahila Mahavidyapith	Online	1 hour 03 July, 2020
	Importance of Yoga and The Teachings of Sages During The Onslaught of Covid-19	ICPR Sponsored lecture-series organized by Government General Degree College Manbazar-II	Online	1 hour 07 July, 2020
	Nāgārjuna’s Polemics Against Pramāna-Prameya Dichotomy	‘Saturday Seminars’ Lucknow University	Online	1 hour 09 August, 2020
	The Concept of Vyāpti with Reference to Annam Bhaṭṭa’s Tarkasaṅgraha and Dīpikā	Invited Lecture organized by Hooghly Mohsin College	Online	1 hour 12 December, 2020
<b>Samar Kumar Mondal</b>	Basic Skills in Psychological Counseling	Invited online talk in the Youtube channel	Online	1 hour 13 October, 2020

**Annual Report 2020-2021**

		Educational and Cultural Station		
<b>Maushumi Guha</b>	‘Wittgenstein and his language games’	Lecture-series under the ‘Beyond the classroom’ scheme organized by AFSU, Jadavpur University	Online	1 hour 28 April, 2020
	‘Metaphysics of Mind’	Invited lecture organized by the Department of Philosophy, Ramakrishna Mission Vidyamandira, Belur.	Online	1 hour 24 July, 2020
	‘Mind, language and form of life in Later Wittgenstein’	Series of periodic lectures organised by the Department of Philosophy, Dukhiram Nibaran Chandra College, Aurangabad, Murshidabad	Online	1 hour 29 March, .2021
<b>Maitreyee Datta</b>	Two lectures on ‘Buddhist Epistemology and Its Development’	Lecture series organized by Centre for Buddhist Studies	Online	1 hour each August-September, 2020
	lecture on ‘Buddhist Social Political Philosophy’	Short Term Course organized by Academic Staff College, Jadavpur University and Centre for Buddhist Studies	Online	1 hour 13 to 19 January, 2021
<b>Gargi Goswami</b>	‘Political theory in Buddhism’	UGC sponsored Short Term Course on Socio-Political Thoughts of Buddhism, Centre for Buddhist Studies, Department of Philosophy, Jadavpur University.	Online	1 hour 13 to 19 January 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Duration</b>
<b>Aparajita Mukhopadhyay</b>	Amar Jagat na Jagate ami: Ekti Bicharmulak Paryalochona	Webinar on “Dealing with Covid 19: Philosophical & Psychological Analysis”, organized by Basanti Devi College, Kolkata	08 June, 2020

### Annual Report 2020-2021

	Good Life: From the perspective of Aristotle	State level Webinar on “How to live a good life: Indian and Western perspectives”, organized by the New Alipore College, Kolkata	12. August, 2020
	Moral Decision: A Reflection of Social Self	ICPR National Webinar on “Professional Ethics and Human Values”, organized by the New Alipore College, Kolkata	3 & 4 October 2020
	Human Rights in Buddhism	Workshop on “Social Political Thought of Buddhism’ organized by the Centre for Buddhist Studies, Department of Philosophy, Jadavpur University	13 to 19 January 2021
	Significance of Life in Sri Aurobindo’s Philosophy	ICPR sponsored State level Webinar organized by the New Alipore College, Kolkata	21 March, 2021
	Existenz, Theory of Becoming and Sri Aurobindo	ICPR sponsored Webinar organized by the Diamond Harbour University	27 March, 2021
<b>Rupa Bandyopadhyay</b>	The Yoga System: The Penultimate Means to the Ultimate End	ICPR sponsored International Webinar on “Yoga for Mankind: Peace and Practice” organized by the Department of Philosophy, Cooch Behar Pancanan Barma University	08 July, 2020
<b>Madhumita Chattopadhyay</b>	“Buddhist Brahmavihāra : A Fore-runner to Care Ethics”	International Webinar on “Buddhist Studies across Asia” organized by the Department of Buddhist Philosophy, Post-graduate Institute of Pali and Buddhist Studies, University of Kelaniya, Sri Lanka	28 December, 2020
	“Analysis of Anumāna following Asanga”	National Webinar in Indian Logic”	08 June, 2020
	“Pandemic situation and Indian Philosophy”	National Webinar organized by the Department of Philosophy, Hooghly Mohsin College, Hooghly	24 June, 2020
<b>Soumitra Basu</b>	COVID-19, Neo-normal, and Stress on students’	Webinar on ‘Mental Health Issues in the Context of COVID -19’ organized by Center for Counselling Services and Studies in Self-development, JU.	03 July, 2020

### Annual Report 2020-2021

	‘COVID-19:Its Impact on Psycho-Social and Ethical aspects of Human Life’.	Webinar on ‘Impact of COVID-19 Pandemic on Physical, Psychological, and Social Aspects of Human Life’, organized by the Department of Philosophy, Bhargar College, Kolkata,	05 August, 2020
	‘Sahishnuta O Naitikata’	Webinar on Naitikata: Chintadhara Yekti Itibachak Dharana’ organized by Philosophy department, Maharani Kasiswari College, Kolkata.	11 August, 2020
	‘COVID-19 Pandemic and Mental Health of Young Adults’	Webinar on ‘Existence-Crisis of Teenagers And Young Adults in Pandemic COVID Situation: Psychological and Ethical Perspectives’, organized by Dwijendralal College, Nadia	16 August, 2020
	‘Socio-Ethical issues in pandemic situation’	Webinar on ‘Applied Ethics: Exploring Social contexts and Moral Decision making, organized by Karimpur Pannadevi College	29 August, 2020
	‘An address to parents and teachers for combatting Pandemic related stress’	Webinar on ‘Coping emotionally with Covid 19: A mentoring session for students, parents and teachers’ organized by Vivekananda College, Thakurpukur.	30 August, 2020
	‘Reflections on Wellbeing and Coping’	Webinar on ‘Coping Strategies and Wellbeing’ organized by Shyamaprasad college, Kolkata	08 September, 2020
	‘Na-dharmiker Adhyatmikata’	Webinar on ‘Dharma Adhyatmikata’ organized by the Department of Philosophy. Prasanta Chandra Mahavidyalaya. Kolkata.	26 September, 2020
	‘Language and Man’	ICPR sponsored Webinar on ‘Philosophical Reflections on Critical Thinking, Logic and Language’, organized by Siliguri College, W.B.	28 January, 2021
<b>Gangadhar Kar</b>	‘Current Pandemic Situation and Bhāratīya Śāstra’	State level Webinar on “Pandemic and Philosophical Thought” organised by Department of Philosophy, Karimpur Pannadevi College	05 August, 2020

### Annual Report 2020-2021

<b>Atashee Chatterjee Sinha</b>	Is the true-false division becoming blurred in this new normal situation?	Webinar on “Ethics; Theory and Practice: The New Normal” organized by IQAC and Dept. of Philosophy, Nabadwip Vidyasagar College, Nabadwip, Nadia.	01 July, 2020
	Moral conflicts during pandemic	Webinar on “The Pandemic: Philosophical Interventions” organized by Department of Philosophy and IQAC, Surendranath Evening College, Kolkata.	27 July, 2020
<b>Proyash Sarkar</b>	‘Distance Learning: An Overview’	Webinar on ‘Some Methodical Issues Regarding Educational System in Neo Normal Situation and in the Context of Indian Epistemology’, organized by the Dept. of Philosophy of Lady Brabourne College, Kolkata.	12 October, 2020
<b>Sashinungla</b>	“Gender equality in Changing Socio-cultural Norms”	National Symposium organized by the Department of Philosophy, Kumar Bhaskar Varma Sanskrit and Ancient Studies University, Nalbari – Assam.	12 August, 2020
<b>Madhucchanda Sen</b>	“Pandemic: Existential and Moral Dilemma Reflected in Life and Literature”	Seminar organized by Department of Philosophy and Internal Quality Assurance Cell (IQAC), Amdanga Jugal Kishore Mahavidyalaya, Kolkata.	29.July, 2020
<b>Dipayan Pattanayak</b>	Pandemic and the Existential Crisis of Philosophical Exploration	National Level seminar organized by Asannagar Madan Mohan Tarkalankar College	16 July, 2020
	Well-being During Covid-19 Pandemic: Psycho-Philosophical Perspectives	State Level Seminar organized by Krishnagar Government College	30 July, 2020
	Covid-19 Pandemic: A Challenge to Restore Mental Health	State Level Seminar organized by Hiralal Mazumder Memorial College for Women	14 August, 2020
	Beyond Religion: A Way Forward (Man’s Surplus: Tagore’s Concept of Religion)	International Level Seminar organized by Uluberia College	23 September, 2020

**Annual Report 2020-2021**

	Suicide, Euthanasia, and The Right to Die with Dignity: A Philosophical Exploration	State Level Seminar organized by Rabindra Mahavidyalaya, Chmpadanga	26 September 2020
	The Concept of Anumāna: With Special Reference to The Nyāya and The Buddhist Model	Special Lectures for Students organized by Durgapur Government College	06 and 07 January 2021
<b>Samar Kumar Mondal</b>	The Concept of Well-being and its Conflicts in the Context of Neo-normal	National Webinar on Psycho-Social Impact on COVID-19: A Philosophical Perspective, Prabhu Jagatbandhu College, Howrah	10 August, 2020
	Stress Related Issues and Life Skill Development for Students	State Level Webinar on Coping emotionally with COVID-19: A mentoring session for students, parents and teachers organized by Vivekananda College, Thakurpukur	30 August, 2020
	Concept of Coping Strategy for Releasing Stress	State Level Webinar Coping Strategies and Well-being in the Context of Covid-19, Shyamaprasad College, Kolkata	08 September, 2020
<b>Maushumi Guha</b>	'The Corona Crisis: Metaphysics versus Statistics: Philosophy during a Pandemic'	One-day National Webinar on "Combating Viral Threats to Human Existence: Issues and Concerns Through the Darkened Glass of Philosophy " organized by the Department of Philosophy, Seth Anandram Jaipuria College, Kolkata	24 June, 2020
	'E-Learning and Digital Divide in the Pandemic: A Philosophical Reflection'	State level Webinar organized by Department of Philosophy, Surendranath College	01 July, 2020
	'The development of mindreading and its aberrations'	keynote address titled, 'The development of mindreading and its aberrations', 1st Global Conference on Education (GECE2020) online on the theme, "Human Cognition in Learning: An Educational Perspective" organized by the	22 August, 2020

## Annual Report 2020-2021

		Department of Education, Jadavpur University	
	'Introducing Ethics of Parenthood in the broader context of the Philosophy of Childhood and Children'	Workshop on 'Emerging Trends in Ethics' organized by the Department of Philosophy, West Bengal State University, Barasat	25 March, 2021
<b>Gargi Goswami</b>	"Women empowerment in Buddhism: Examining Some Issues"	State level Webinar by Nabadwip Vidyasagar College	27 June, 2020
	'Some Ethical Issues during Covid-19 Lockdown'	International Webinar by Bijoy Krishna Girls' College	29 June, 2020
	'Global Crisis and Human Well Being: Some Buddhist Solutions'	State level Webinar by Sri Krishna College, Bagula, Nadia	28 August, 2020

### 6. Major Achievements of the Department during the year:

#### D. Any Other Major Achievements:

##### Teaching:

- Due to the outbreak of COVID-19, contact mode classes for UG, PG and M.Phil could not be held. Consequently we arranged for online classes at all levels starting from UG 1st year to M.Phil courses.
- Apart from delivering online live lectures, most of the teachers uploaded their recorded lectures in YouTube or sent to the students the links of the recordings of their lectures from the Google Drive.
- The study materials along with the recorded lectures were uploaded online for the students who stay in remote places and could not collect their books due to lockdown.
- The teachers of the department supervised the M.Phil candidates for their dissertation during this period in online mode. These dissertations were evaluated by external examiners in the online mode.
- The teachers were also involved in the Ph.D supervision of their scholars through online modalities.

#### a. Research Groups:

Department of Philosophy, Jadavpur University is known for conducting group research where not only faculty members of our department participate, but faculty members, scholars of nearby colleges and universities regularly join in the academic discussion. As an outcome of these group researches several manuscripts came up, however due to paucity of funds we could not immediately publish many of their research products. We are talking to several publishing houses for the publication of the same. During this pandemic situation the department did not stop this tradition, rather continued with the same in online mode. During the first few months of the pandemic and lockdown we were unable to go ahead with all our activities. The infrastructure required for the new normal situation was not available to us at that time. Even the libraries were not open. Due to all these contingencies we had to start our activities a little late. But later on we carried on with our projects in the online mode with the online study materials available to us.



## Annual Report 2020-2021

In addition to the existing Feminist Reading group and Sri Aurobindo Study group, a new reading group for continental philosophy has been formed, in which different aspects of continental philosophy are discussed and primary texts on this area are studied. The Mind group has organized online series of lectures during this period for teaching faculty and research scholars.

**b. Administrative Activities:**

After one month of complete lockdown, the department started its academic activities in the online mode. The ATM, the BOS were arranged online on a regular basis, as soon as the University authority issued permission to conduct them. PRC meetings were also held in online mode.

**c. Curriculum Last Revised & Significant Changes:**

New Syllabus for the UG and PG levels has been introduced in the year 2016. Though we planned to revise the syllabus in some areas to tally with other International institutes, we could not do much progress owing to the difficulties faced during the pandemic. In the syllabus for M. Phil and Ph. D coursework, special emphasis is given on research methodology: Indian and Western. Teachers, while offering optional courses, focus on contemporary research areas, such as Reflection on Searle 's Rediscovery of mind, Noam Chomsky, Bimal Krishna Matilal, Ontology of P.F. Strawson, Philosophy of Arindam Chakraborty, Feminist perspectives on Power, Sceptical tradition of India, Moral Responsibility, Metaphysics of Sri Ramakrishna's Philosophy and so on, at both the M.Phil and Ph.D. levels. At all levels emphasis is given on learning and research rather than forced teaching and enabling students to learn how to write research articles.

**d. Examination reforms last made with special features:**

From 2020 till date the faculty members of the department have conducted all the Semester Examinations (including Internal Assessments) in online mode. Following the UGC guidelines, question papers were moderated by examination committee including external member. Setting of the Examination schedule, sending question papers to the candidates, sending list of candidates to corresponding teachers, uploading of marks of both internal and semester evaluations (through JUMS) were all done by the faculty members.

**e. Teaching lab./equip./new facilities created:**

The department has one computer lab on the third floor of sDarshan Bhavan. This lab has 10 computers with peripherals and this lab is accessible to MPhil and PhD scholars of the department. The university provides online access to different internet libraries and the scholars can avail them through the university website. The University subscribes to different e-books and e-journals through the Central Library each year and they are made available to our scholars and researchers. This may further be noted that the University has an e-library annexed to our Central Library.

Departmental Library: Books: New Books Purchased in 2020-2021: Under CAS – 1383 (5 years) From State Grant -19 books

Total Number of Books in the Departmental Library – 9774

(ii) Research:

a) Research

(i) Research: In the current phase, the Department had four group research projects, six joint research projects and twelve individual research projects

(ii) Publication: CAS publication

- Ethics in Ramayana by Robert Goldman, D.K Printworld, ISBN. 9788124609828

## Annual Report 2020-2021

- Neel Akāsher Niche (in Bengali) by Gangadhar Kar. Mahabodhi Book Agency. ISBN.978-93-84721-75-6
- Bhasarvarjña Sammata Pramānatattva by Ratna DuttaSharma.Mahabodhi Book Agency.ISBN. 9789384721145
- Refugees, Marriages, Asuras and Varied: Vol II: Morality for the Ailing and Others (Collection of Essays on Applied Ethics) jointly edited by Indrani Sanyal and Ratna Dutta Sharma. Suryodaya Books. ISBN. 9788193607633 (hardbound)
- Approaches to Real in Contemporary India edited by Soumitra Basu and Maitreyee Datta. Suryodaya Books. ISBN. 9788193607640
- Conditions for being a Democratic State edited by Samar Kumar Mondal.Suryodaya Books.
- Publication other than CAS
- A book entitled Indian Theories of Illusion by Rupa Bandyopadhyay is published.
- An enlarged version of the book Jnana, Samsayavada o Juktisiddhi Prosonge by Proyash Sarkar is in Press.
- A Monograph entitled Socio-Political Thoughts of Buddhism by Madhumita Chattopadhyay is in press.
- An Anthology entitled Inequality: Some Philosophical Dimensions edited by Madhumita Chattopadhyay and Gargi Goswami is in press.
- The manuscript of An Anthology on Logic, Ethics and Epics: Homage to Professor Bimal Krishna Matila lis in press.
- The book entitled Walking Along the Paths of Buddhist Epistemology by Madhumita Chattopadhyay, which was originally published under the CAS Phase IV, has been translated into Chinese and is being published from Hangzhou Buddhist Academy, China (in press).
- Publication from University Fund
- One issue each of the Jadavpur Journal of Philosophy and Darshan Biksha for the year 2020 has already been published by D. K. Printworld, New Delhi and Ebong Mushayra, Kolkata respectively.
- One issue of Darshan Biksha for the year 2021 is in press.

### 7. Extension Activities of the Department during the year:

#### A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.

One of our faculty members, Prof. Atashee Chatterjee Sinha, has been a member of the Ethics Committee of a reputed hospital of Kolkata. She is also a member of the Governing Body, J.D. Birla Institute, Kolkata.

#### B. Activities for the Society:

Prof. Soumitra Basu and Prof. Samar Kumar Mondal of Philosophy department regularly conduct stress management programmes for the students and faculty members of various colleges and universities in West Bengal. They are associated with the Centre for Counselling Services and Studies in Self Development. Prof. Samar Kumar Mondal, Coordinator of the Counselling Centre has organized many programmes related to mental health during pandemic. The Centre is housed in the department.

### 8. Students Progression during the year:

#### A. Progression to Higher Studies

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
07	MA	M.Phil	Jadavpur University (04), Vidyasagar University (01),

## Annual Report 2020-2021

			Diamond Harbour Womens' University (01), University of Gour Banga (01)
03	M.Phil	Ph.D	Jadavpur University
01	MA	MBA	IISWBM

### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	10
SET	07
GATE	02
State Government Services (Placed in Colleges and Universities)	10

## PHYSICAL EDUCATION

Phone: 033-2457-2486

H.O.D : Prof. Sanjib Mridha

Prof. Sudip Sundar Das (since 4.1.2021)

E-mail: [hod.ph.ed@jadavpuruniversity.in](mailto:hod.ph.ed@jadavpuruniversity.in)

### 1. Vision and Mission of the Department:

#### A. Vision:

To produce and provide the nation with competitive, committed, diligent, disciplined, dynamic and versatile Physical Educators.

#### B. Mission:

- To undertake a journey towards excellence in teacher education in the field of Physical Education through research, innovative practice with deeper emphasis on pedagogical skills and optimum use of available resources.
- To strive towards excellence as changing expectation in the field of Physical Education by imparting required skills and value based education.
- To prepare future Physical Education teachers by providing harmonious and stimulated academic environment to inculcate the tradition and cultural heritage in Teaching-Learning.
- To orient the Student- teachers with the latest technology bared teaching methodology for promotion of quality teaching and research.

## Annual Report 2020-2021

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. Of Students
B.P.Ed.	Two	1 <sup>st</sup> year	50
		2 <sup>nd</sup> year ...	50
M.P.Ed.	Two	1 <sup>st</sup> and 2 <sup>nd</sup> year	40/year
P.G.D.Y.	One		25

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
03	01	03+ 01(Contractual wholetime permanent)	07

### 4. Research Activities:

#### A. Areas of Research Activities:

Sports Psychology, Sports Biomechanics, Exercise Physiology, Sports Management, Test and Measurement, and Sports Training

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
06	23

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, Name of the Journal, Volume No., PageNo/Article No. Year of publication):

##### Prof. Ashoke Kumar Biswas

1. Debasish Mandal & Ashoke Kumar Biswas, A study on stride length in initial acceleration phase for tribal and non-tribal school boys, International European journal of physical education and sport science, June, 2020
2. Ashoke Kumar Biswas, Comparison of Training Effect on Reaction Time Between Male and Female Subjects, "ANUSHILAN", Journal of Physical Education, Yoga and Sports, Vol-1, July, 2020
3. Sujit Mandal & Ashoke Kumar Biswas, Contribution of Netaji Subhas National Institute of Sports (NSNIS) towards improvement of diploma in coaching education in India, International journal of physical education, sports and health, September, 2020
4. Debasish Mandal & Ashoke Kumar Biswas Compression of elbow angle between tribal and non-tribal school boys in acceleration phase during 100 meter sprinting, International Journal of advances in sports and physical education, October, 2020

## Annual Report 2020-2021

5. Debasish Mandal & Ashoke Kumar Biswas Stride length for tribal and non-tribal adolescents at different phases of sprinting, International journal of multidisciplinary research and development January, 2021

### Dr. Asish Paul

1. Asish Paul, comparative influence of soccer training on selected variables among soccerplayers, International Journal of Current Research, August, 2020 Vol.12, Issue,08, pp.12966-12970
2. Asish Paul, A study on the selected polycysticovary syndrome symptoms of the Bengali femaleathletes, muktshabd Journal, July 2020, Vol ix (vii)
3. Asish Paul, 'A Study on the Relationship of Socioeconomic Status with wellbeing of different professional groups', Journal of Research in Humanities and Social, 10 November, 2020, science volume8 ~ Issue 11 (2020) pp:01-08ISSN(Online):2321-9467

### Dr. Sridip Chatterjee

1. Surendra Singh Sankhala, Singh Deepeshwar, shiva kumar kotikalapudi, sridip chatterjee. Determining bioenergy field of autistic and normal healthy children: an electrophotonic imaging study. International Journal of Community Medicine and Public Health, 2020 April;7(4):1547-1554.DOI: <http://dx.doi.org/10.18203/2394-6040.ijcmph20201472>.
2. Chatterjee Sridip and mondal samiran. Role of yogvyayama in health and wellness: a review study. Anushilan-Journal of Physical Education, Yoga and Sports. (1)9; 36-43 (July 2020).
3. Bhattacharya Puneet, Chatterjee Sridip. Menopause and Exercise: A Critical Appraisal. Anushilan-Journal of Physical Education, Yoga and Sports. (1)9; 64-68 (July 2020).
4. Manabendra majhi, samiran mondal and Sridip Chatterjee. Significance of proprioceptive neuromuscular facilitation on physical fitness physiological function and rehabilitation: a narrative review. International journal of scientific research. Volume - 10 | Issue - 01 | January - 2021 | PRINT ISSN No. 2277 - 8179 | DOI: 10.36106/ijsr.
5. Chatterjee S, Mondal S, Singh D. Effect of 12 Weeks of Yogic Training on Neurocognitive Variables: A Quasi-Experimental Study. Indian J Community Med. 2021 January-March;46(1):112-116. Doi: 10.4103/ijcm.IJCM\_325\_20. Epub 2021 Mar 1. PMID: 34035589; PMCID: PMC8117916.
6. Manabendra majhi, samiran mondal, sridip chatterjee and Deepeshwer Singh. Understanding the theoretical mechanisms behind proprioceptive neuromuscular facilitation through the experimental studies on brain. Volume - 11 | Issue - 03 | March – 2021; PRINT ISSN No 2249 - 555X | DOI : 10.36106/ijar.

### Dr. Papan Mondal

1. Dr. Papan mondal. A Study of Take-off Velocity in Basketball Lay-Up Shot.Kala Sarovar journal, volumes 23, December, 2020  
N PHYSICAL EDUCATION MATERIAL  
FACILITIES OF COLLEGES IN WEST BENGAL

### Puneet Bhattacharya

1. Bhattacharya Puneet, Chatterjee Sridip. Menopause and Exercise: A Critical Appraisal. Anushilan-Journal of Physical Education, Yoga and Sports. (1)9; 64-68 (July 2020)

## E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

## Annual Report 2020-2021

### **Dr. Sridip Chatterjee**

1. Bhattacharya P., **Chatterjee S.** Immediate Effect of Single Bout of Karate Exercise on Heart Rate. Hassan M. Et al. (eds), In book: Enhancing Health and Sports Performance by Design, pp.223-234., Springer, Singapore. Doi. [https://doi.org/10.1007/978-981-15-3270-2\\_25](https://doi.org/10.1007/978-981-15-3270-2_25). First Online 24 April 2020.
2. Konar A., **Chatterjee S.**, Mondal S. Effect of twelve weeks of yogic training on general immunological health variables in a middle-aged group. Hassan M. Et al. (eds), In book: Enhancing Health and Sports Performance by Design, pp.223-234., Springer, Singapore. Doi. [https://doi.org/10.1007/978-981-15-3270-2\\_25](https://doi.org/10.1007/978-981-15-3270-2_25). First Online 24 April 2020.

### **Puneet Bhattacharya**

1. **Bhattacharya P.**, Chatterjee S. Immediate Effect of Single Bout of Karate Exercise on Heart Rate. Hassan M. Et al. (eds), In book: Enhancing Health and Sports Performance by Design, pp.223-234., Springer, Singapore. Doi. [https://doi.org/10.1007/978-981-15-3270-2\\_25](https://doi.org/10.1007/978-981-15-3270-2_25). First Online 24 April 2020

#### **F. Research Articles Published in Conference Proceedings during the year:**

**(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year):**

### **Dr. Sridip Chatterjee**

1. Puneet Bhattacharya and **Sridip Chatterjee.** Effects of Exercise on Andropause: A Focused Review. International Journal for Innovative Research in Multidisciplinary Field, In: International E - Conference on “Trend Issues and Development of Physical Education and Sports” Theme All round development of human personality, 323-330., Research Culture Society & Publication, 30-31 July, 2020 (Conference Proceedings – Special Issue) - ISSN: 2455:0620.
2. Sharmistha samanta and **Sridip Chatterjee.** An evidence based review study on metabolic syndrome, exercise & nutritional aspects. International Journal for Innovative Research in Multidisciplinary Field, In: International E - Conference on “Trend Issues and Development of Physical Education and Sports” Theme All round development of human personality, 672-683., Research Culture Society & Publication, 30-31 July, 2020 (Conference Proceedings – Special Issue) - ISSN: 2455:0620.

### **Puneet Bhattacharya**

1. **Puneet Bhattacharya** and Sridip Chatterjee. Effects of Exercise on Andropause: A Focused Review. International Journal for Innovative Research in Multidisciplinary Field, In: International E - Conference on “Trend Issues and Development of Physical Education and Sports”. Theme All round development of human personality, 323-330., Research Culture Society & Publication, 30-31 July, 2020 (Conference Proceedings – Special Issue) - ISSN: 2455:0620

#### **5. Professional Activities by the Faculty Members / Research Scholars of the Departments during the year:**

##### **A. Books/Monographs Published:**

Azim Rojina, Paul Asish, Ghosh Badshah, “Effect of Physical Exercise and Yogic Practices on Dysmenorrhea”, Lap Lambert Academic Publishing, ISBN: 9786203303728, January, 2021

## Annual Report 2020-2021

### D. Refresher Courses Organized:

(Name of the Teachers, Title of the Course, if any, Duration, Place):

Title of the Course	Name of the Coordinator(s)	Place	Date
State Level Refresher Course on Health and Physical Education	Asish Paul, Jt. Organizing Secretary <b>Prof. Sanjib Mridha</b> , President, Org. Committee	Department Of Physical Education, Jadavpur University	9-12 December, 2020

### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
<b>Dr. Papan Mondal</b>	UGC-Sponsored Refresher Course (Online)	LNIPE, Gwalior	13-26 March, 2021
<b>Dr. Sridip Chatterjee</b>	Refresher Course on “Teachers on Using ICT for online Teaching Learning Process”	Faculty Development Centre, Tripura University	1-14 December, 2020
<b>Dr. Atanu Ghosh</b>	UGC-Sponsored Refresher Course (Online)	LNIPE, Gwalior 13-26 March, 2021	Dr. Atanu Ghosh

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Sudip Sundar Das</b>	Resource Person/Chair Person	Trends of Development of Physical Education and Education in 21 <sup>st</sup> Century	Chandrapur College, Purba Bardhaman, West Bengal, India in collaboration with WBCIPE	25-26 July, 2020
	Resource Person	Public Health Approach of Yoga for Covid-19 Prophylaxis	Govt. Sponsored Teachers' Training College, Purulia, WB.	21 June, 2020
<b>Prof. Ashoke Kr. Biswas</b>	Invited Lectureon “Place of Physical Education and Sports in the Education	WBCIPE National Webinar: Centenary Celebration: Professional Physical Education in India (1920-2020)	Online Mode	27 November, 2020

### Annual Report 2020-2021

	System from 1920 to 2020”			
<b>Prof. Ashoke Kr. Biswas</b>	Invited Lecture on “Balance Diet and Nutrition for Self-Management in COVID 19 Era”	International Webinar Lecture on COVID 19 organised by National Association for Physical Education and Sports Sciece –Lecture Session: 5	Online Mode	07 May, 2020
<b>Prof. Ashoke Kumar Biswas</b>	Attended & Member of Editorial Board	2 Day international E-Conference on ‘Trends Issues and Development of Physical Education and Sports’ Theme: “All Round Development of Human Personality”	Online Mode	30-31 July, 2020
<b>Prof. Ashoke Kumar Biswas</b>	Lecture on Induction Programme for Engineering Students	University Department, RTU, Kota, Rajasthan	Online Mode	29 November, 2020.
<b>Prof. Ashoke Kumar Biswas</b>	Lecture on “Psycho-social Basis of Physical Education”	Refreshers Course on ‘Health and Physical Education’, organised by ‘PRAKTANI’ – Alumni Association, Department of Physical Education, JU	Online Mode	9-12 December, 2020
<b>Dr. Asish Paul</b>	Resource person	Refresher Course on ‘Health and Physical Education’	Department of Physical Education, Jadavpur University	From 3:30pm to 5:00pm on 10 December, 2020
<b>Dr. Asish Paul</b>	Invited Lecture	Management in Physical Education	Department of Physical Education, Burdwan University	One Hour on 06 July, 2020



### Annual Report 2020-2021

<b>Dr. Asish Paul</b>	Invited Lecture series	Talent identification and its development	Department of Sports Management, IISW & BM, Kolkata	One Hour on 20, 22, 24, 27 and 29 April 2020, 04 May 2020
<b>Dr. Papan Mondal</b>	Invited Lecture	Research Process In Physical Education and Sport Sciences	Burdwan University and One Hour (02.07.2020)	One Hour 02 July, 2020
<b>Dr. Papan Mondal</b>	Invited Lecture	Research Process In Physical Education and Sport Sciences	Burdwan University and One Hour (07.07.2020)	One Hour 07 July, 2020
<b>Dr. Papan mondal</b>	Resource Person	Refresher Course on "Health and Physical Education"	Jadavpur University, 9-12 December, 2020	9-12 December, 2020
<b>Dr. Sridip Chatterjee</b>		Webinar on A Live interactive session to commemorate the 6th International Yoga day.	Bethune College, Kolkata, West Bengal	6 July, 2020
<b>Dr. Sridip Chatterjee</b>	Invited Speaker	International webinar on "Exercise for Holistic Health and Wellness".	Prabhat Kumar College, Contai Purba Medinipur Vidyasagar University. West Bengal, India	Two Days, 2-3 August, 2020
<b>Dr. Sridip Chatterjee</b>	Invited Speaker	National Webinar on Role of Exercise and Nutrition for Positive Health	Balaghar Bijoy Krishna Mahavidyalaya, Balaghar, Burdwan, West Bengal	3 August, 2020
<b>Dr. Sridip Chatterjee</b>	Invited Speaker	One Day National Level Online Workshop On Practical Aspects of Yoga for Promotion of Personal Health	Jointly Organized By Department of Physical Education Khejuri College Post: Baratala; Purba Medinipur, West Bengal and Indian Yoga Association	16 August, 2020

**Annual Report 2020-2021**

			(West Bengal Chapter)	
<b>Dr. Sridip Chatterjee</b>	Speaker	State Level Refresher Course on Health and Physical Education of XI – XII Syllabus of Physical Education, Govt. Of West Bengal.	Online Workshop organized by Department of Physical Education, JU	Four Days 9 – 12 December, 2020
<b>Dr. Sridip Chatterjee</b>	Invited Speaker	Importance and Relevance of Study of Music and Physical Education in Primary to Higher Education in the New Normal Situation	Online Webinar organized by Udaynarayanpur college, Udaynarayanpur - munshirhat road, Joynagar, West Bengal, India	One Day 23 September, 2020
<b>Dr. Sridip Chatterjee</b>	Invited Speaker	WEBINAR ON YOGA FOR INNER WELL-BEING	Organized By NSHM, Kolkata	26 September, 2020
<b>Dr. Sridip Chatterjee</b>	Invited Speaker	State Level Workshop on Training for COVID '19 Volunteer	Online Webinar organized by Mugberia Gangadhar Mahavidyalaya, Bhupatinagar, Purba Medinipur, West Bengal, India	One Day 23 May, 2021
<b>Dr. Atanu Ghosh</b>	Invited Lecture	Research Process In Physical Education and Sport Sciences	Burdwan University	One Hour 02 July, 2020
<b>Dr. Atanu Ghosh</b>	Invited Lecture	Research Process In Physical Education and Sport Sciences	Burdwan University	One Hour 07 July,2020
<b>Dr. Atanu Ghosh</b>	Resource Person	Refresher Course on “Health and Physical Education”	Jadavpur University,	9-12 December, 2020
<b>Puneet Bhattacharya</b>	Invited Speaker	Workshop on Training for COVID '19 Volunteer,	Online	One Day 23 May, 2021
<b>Puneet Bhattacharya</b>	Speaker	State Level Refresher Course on Health and Physical Education, Department of Physical Education,	Online	Four Days 9 -12 December 2020

**Annual Report 2020-2021**

Puneet Bhattacharya	Invited Speaker	Workshop on Training for COVID -19 Volunteer	Online	One Day 23 May 2021
------------------------	--------------------	--	--------	---------------------------

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Sudip Sundar Das</b>	Pragmatic Approaches to Create Sustainable Lifestyle Management	Government first grade college	International Virtual Seminar Kanakapura, Ramanagara District, Karnataka, India	05-06 October, 2020
	Role of Coaches in Modern Volleyball	Ayyanadar Janaki Ammal College	International Webinar, Tamil Nadu	13 June, 2020
	Physical education, Exercise sciences in Context to Covid-19	Department of Physical Education: BHU, Varanasi, India & In collaboration with British Asson. Of Sports and Exercise Sciences (BASES).	International Webinar, Varanasi,India	10-11 July, 2020
	Latest Trends in Physical Education-2020	Bharatiya Mahavidyalaya Amaravati, M.S., India in collaboration and International Federation of Physical Fitness and Sports Science Asson., & Indian federation of Computer Science in Sports.	International Webinar, Amaravati, India	15 July, 2020
	Trends and Issues in Physical Education and Sports Science	International Federation of Physical education, Fitness and Sports Science Asson. And College of Human Kinetic, Polytechnic University, Philippines	International	18 July, 2020
	Latest Trends in Sports Coaching-2020	International Federation of Physical education, Fitness and Sports Science Asson.	International	19 July, 2020

**Annual Report 2020-2021**

		And Sports Science Faculty, Yogyakarta State University, Indonesia		
Yoga is a Means of Healthier Lifestyle During Corona Virus Pandemic	Department of Physical Education: University of Kalyani, WB.	International Webinar	22 July, 2020	
Physical Psychological and Spiritual Discipline: A Key to Wellbeing in the New Normal	Lingaraj College, Belagavi, Karnataka and International Federation of Physical Education, Fitness and Sports Science Asson.	International Webinar	25 July, 2020	
Trends of Development of Physical Education and Education in 21 <sup>st</sup> Century	Chandrapur College, Purba Bardhaman, West Bengal, India in collaboration with WBCIPE	International Webinar	25-26 July, 2020	
Sports Science + Sports Medicine	International Federation for Fitness, Health, Physical Education & Iron Games	World Webinar	26-27 July, 2020	
Trends Issues and Development of Physical Education and Sports	Manipur University, Manipur, Imphal	International Econference	30-31 July, 2020	
Sports Philosophy, Aquatics Pandemic Challenges, Dry Land Training, Mobility & Athletics Training-	SGT College, Delhi & International Federation of Physical education, Fitness and Sports Science Association And College of Human Kinetic, Polytechnic University, Philippines	International Webinar	09 August, 2020	
Strengthening of Mental Health Through Music and Yoga in COVID-19 Pandemic	Mugberia Gangadhar Mahavidyalaya, Purba Medinipur, WestBengal, India	International Webinar	24 August, 2020	
Role of Youth in the COVID-19 Pandemic	National Service Scheme, Jadavpur	International Webinar	24 September, 2020	

**Annual Report 2020-2021**

		University, Kolkata, WB		
	Development & Maintenance of Physical & Mental Wellness during COVID-19 Pandemic	Midnapore College, West Bengal in Collaboration with Psychological Society of India	National Webinar	29 August, 2020
	Strategical Importance of complex-II Skills in Volleyball service, Block & Defense	Department of Physical Education: Kalasalingam, Deemed to be University, Tamil Nadu.	National Web Seminar	21 June, 2020
	Modern technical Skills complex-I (Service Receptions) in Volleyball	Department of Physical Education: Kalasalingam, Deemed to be University, Tamil Nadu	National Web Seminar	28 June, 2020
	Modern technical Skills complex-I (Attack/Attack Combinations) in Volleyball	Dept. of Physical Education, Kare, Tamil Nadu	National Web Seminar	05 July, 2020
<b>Dr. Asish Paul</b>	Sports brand awareness among the students of West Bengal-A Pilot Study	Trends of development of Physical Education and Education in 21 <sup>st</sup> century	Department of Physical Education, Chandrapur College	25-26 July, 2020
<b>Dr. Asish Paul</b>	A status survey on Advertisements in Television of IPL 2018	Health and Fitness during Pandemic Covid-19 and holistic approaches to athletics	Department of Physical Education, University of Burdwan	02-03 September, 2020
<b>Dr. Papan Mondal</b>	Covid-19: Sports Crisis and Strategies to Cope Up	“Online International Conference on Post-Covid Education, Physical Education Scenario”	SPDM Arts, SBB & SHD Commerce and SMA Science College, Shirpur Dist. Dhule (MS)	29 May, 2020
<b>Dr. Papan Mondal</b>	-	Online workshop on Research Methodology	IQAC, Acharya Prafulla Chandra College in Collaboration & IQAC, East Calcutta Girls College	22-26 June, 2020

## Annual Report 2020-2021

<b>Dr. Atanu Ghosh</b>	Dr. Atanu ghosh	Trends of development of physical education and education in 21 <sup>st</sup> century	Dept. Of Physical Education, Chandrapur College, University of Burdwan	
<b>Puneet Bhattacharya</b>	Effects of Exercise on Andropause: A Focused Review.	International E-Conference on “Trend Issues and Development of Physical Education and Sports” Theme All round development of human personality	Online	2 days 30-31 July, 2020

### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
<b>Puneet Bhattacharya</b>	Japan Karate Association, Online License Examination taken from Japan Head Quarter, Tokyo for Instructor D, Judge D and Examiner D 18/12/2020	From Tokyo, Japan conducted Online	One Day Examination
<b>Puneet Bhattacharya</b>	Certificate Course in Yoga-Kaivalyadhama - G.S. College of Yoga and Cultural Synthesis October-November 2020	From Lonavala Conducted Online	One month
<b>Puneet Bhattacharya</b>	Cognitive Fitness Online Course form Harvard Health Publishing: Date: 19/08/2020	Online from Harvard University	Self-Paced

### 7. Extension Activities of the Department during the year:

#### B. Activities for the Society:

1. State Level Refresher Course on Health and Physical Education, Dept. of Physical Education, Jadavpur University 9-12 December, 2020
2. Celebration of World Yoga Day (21 June), Celebration of Independence Day, Celebration of Republic Day, Celebration of National Teachers’ Day, Celebration of National Sports Day (29 August), Birth day celebration of Poet R. N. Tagore

### 8. Students Progression during the year

#### A. Progression to Higher Studies

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
03	B.P.Ed.	M.P.Ed.	1. Visva Bharati University, Santiniketan 2. PGGPEI, Banipur, West Bengal State University

## Annual Report 2020-2021

			3. Gitanjali College, Burdwan University
01	M.P.Ed.	Ph. D.	Banaras Hindu University

### B. Qualifying in State/ National/ International Level Examinations

Name of the Examination	No. Of students selected/ qualified
NET	05
SET	04
State Government Services	06
Any Other	03

### SANSKRIT

Phone: 033-2414-6115

033-2457-2086/2254

H.O.D : Dr. Ashok Kumar Mahata

E-mail: [hod.sanskrit@jadavpuruniversity.in](mailto:hod.sanskrit@jadavpuruniversity.in)

#### 1. Vision and Mission of the Department:

##### A. Vision:

To cultivate the knowledge of Sanskrit towards the expansion of the horizons of knowledge.

##### B. Mission:

The department of Sanskrit of Jadavpur University has to play a pivotal role in nourishing the academic world with the grains of perennial wisdom. It has to provide scope to all the academic units to make use of knowledge and insights available in this rich repository of ancient knowledge. Therefore, a new state-of-the-art centre of research in Sanskrit language and allied branches is to be built in the premises of the university which will provide a plethora of opportunities to all inquisitive researchers towards the fulfillment of their academic pursuit in a more holistic way.

The Department of Sanskrit, Jadavpur University thus aims to build up a vibrant centre of excellence in the areas of Indological research which will serve the greater purpose of cultivation and dissemination of wisdom.

#### 2. Academic Activities:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.A. Honours	3-years	1 <sup>st</sup> year	32
		2 <sup>nd</sup> year	70
		3 <sup>rd</sup> year	57
B.A. Extra-Departmental	2-years		50
M.A (Day)	2-years	1st year	48

## Annual Report 2020-2021

		2 <sup>nd</sup> year	48
M.A (Evening)	2- years	1 <sup>st</sup> year	61
		2 <sup>nd</sup> year	60
M.Phil	2-years	1 <sup>st</sup> year	19
		2 <sup>nd</sup> year	17
Ph.D	5-years		No new enrollment during the April 2020-March 2021

**A. Programmes offered:**

**3. Faculty Members in the Department:**

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
3	2	3	8

**4. Research Activities:**

**A. Areas of Research Activities: (Broad Areas)**

- I. Vedic Studies
- II. Grammar and Indian Linguistics
- III. Indian Philosophical Systems
- IV. Literature, Literary Criticism, Drama and Dramaturgy
- V. Smṛti Literature
- VI. Epigraphy and Manuscriptology

**C. Doctoral Research Activities:**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Dept.
2	0

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

**Prof. Debarchana Sarkar:**

1. “বাংলার রূপকথায় প্রাপ্তবয়স্কতা ও প্রাপ্তমনস্কতা: কেন্দ্রবিন্দুতে ঠাকুরমার বুলি”, Anvikṣā Vol. XLII, Part I, Research Journal of the Department of Sanskrit, Jadavpur University, 2021 [ISSN: 0587-1646]. p. 31-37.

**Prof. Tapan Sankar Bhattacharyya:**

1. “Prātipadikasvaranirṇaye phiṭṣūtrāṇām yogadānam”, Anvikṣā Vol. XLII, Part I, Research Journal of the Department of Sanskrit, Jadavpur University, 2021 [ISSN: 0587-1646].
2. “Śrīmadbhagavadgītāyām Vedāntatattvānuśīlanam”, Bhāratīya Ādhunika Saṃskṛtite Śrīmadbhagavadgītāra Dārśanika o Sāmājika Paryālocanā, Published by Anjan Saha for Avenel Press, Memari, Burdwan on October, 21. 2020 [ISBN: 978-81-947992-8-3].

**Dr. Ashok Kumar Mahata:**

1. “Prescription Vs. Prohibition: A Scriptural Debate on the Study of the Veda and the Performance of Vedic Rituals for the Sūdras”, Anvikṣā Vol. XLII, Part I, Research Journal of the Department of Sanskrit, Jadavpur University, 2021 [ISSN: 0587-1646]. p. 80-99.



## Annual Report 2020-2021

### Dr. Kakali Ghosh:

1. Contribution [Jointly with Rajeshwar Mukherjee, Assistant Director (Research), PLRD, Kaivalyadhama, Lonavla, Pune and Somenath Chakrabarty, Professor of Physics, Visva-Bharati, Santiniketan] to the Research Article titled “On the Unifying Nature of Vibration” published in SSRG International Journal of Applied Physics (SSRG-IJAP) – Volume 7 Issue 1 – January to April 2020. p. 134-141.

[Significant contribution in interfacing Theoretical Physics with Ancient Indian Wisdom making for the development of the Holistic Science]

Cf. [doi>](https://doi.org/10.14445/23500301/IJAP-V7I1P119): 10.14445/23500301/IJAP-V7I1P119

<http://www.internationaljournalssrg.org/IJAP/paper-details?Id=120>

### Dr. Shiuli Basu:

1. “Anandavardhanadr̥ṣṭyā aucityaprasaṅgaḥ”, Anvīkṣā Vol. XLII, Part I, Research Journal of the Department of Sanskrit, Jadavpur University, 2021 [ISSN: 0587-1646].
2. “Sanskṛta kāvyaśāstre slesavimarśa - ekā samīkṣā”, Vyāsaśrīḥ (A UGC Care listed Refereed Research Journal), Vol. XVII, 2021 [ISSN: 2320-2025].

### Dr. Debdas Mandal:

1. “Narakasya Svarūpanirūpanam: Ekam Purātatvikasamīkṣnam”, Anvīkṣā Vol. XLII, Part I, Research Journal of the Department of Sanskrit, Jadavpur University, 2021 [ISSN: 0587-1646].

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

#### Dr. Ashok Kumar Mahata

Title of the article: “Battle of Ten Kings in the Rigveda and Its Influence on the Kuruksetra War in the Mahabharata”.

Title of the Book: Swarnasundaram (Peer Reviewed) Dr. Nirmal Sundar Mishra Felicitation Volume

Name of the Editors(eds): Dr. Sashibhusan Mishra

Article No. 33, Page No. 356-367

Name of the Publisher: The Banaras Mercantile Company, Kolkata- 700 007

[ISBN: 978-81-86359-885], July, 2020.

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### A. Books/Monographs Published:

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Dr. Kakali Ghosh	“THE REFLECTION OF YOGA IN THE PRINCIPAL UPANIṢADS” Volume 1	Kaivalyadhama, Lonavla, Pune	978-93-87198-07-4	June 2020

**Annual Report 2020-2021**

**C. Seminar/Workshop/Conference/Symposium Organized:**  
(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

Name of the Seminar/Workshop/ Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Four-Day National Level Webinar on “Indian Literature and Pandemic Measures and Management”	<b>Dr. Kakali Ghosh</b> <b>Dr. Debdas Mandal</b> <b>Dr. Bikash Sardar</b>	NA	Department of Sanskrit, Jadavpur University, Kolkata	19 to 22 January, 2021

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
<b>Dr. Bikash Sardar</b>	30 <sup>th</sup> Orientation Course (Online)	Mizoram University	28 July to 17 August, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Debarchana Sarkar</b>	Session Chaired	National Webinar titled ‘Indian Literature and Pandemic: Measures and Management’	Department of Sanskrit, Jadavpur University	90 Minutes
<b>Prof. Tapan Sankar Bhattacharyya</b>	Resource Person	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University. Kolkata
	Resource Person	State Level Webinar on ‘Saṃskṛtasāhityadiśā : Mānavakalyāne Viśve Ahimsāyāḥ Avadānam’	Department Sanskrit & IQAC, City College, Kolkata – 700009	31 August, 2020
	Resource Person	One-Day National Webinar on ‘Education System in Ancient India and its Present Relevance’	Department of Sanskrit in collaboration with IQAC, Bhargar Mahavidyalaya	31 August, 2020

**Annual Report 2020-2021**

	Resource Person	“Teacher’s Day”	Sri Sri Sitaramdas Omkarnath Samskrita Siksha Samsad, Kolkata	5 September, 2020
	Resource Person	Vyasashree Jnanadeepah Special Lecture Series on ‘Sri Nirmal Chandra Bandyopadhyay Memorial Lecture’	Vyasashree Jnanadeepah	7 September, 2020
	Resource Person	Web Lecture Series on ‘Samāsaprakaraṇam in Siddhāntakoumudī’	Department of Sanskrit, Dhruva Chand Halder College, Dakshin Barasat, South 24 Parganas	10 September, 2020
	Resource Person	Seven-days Text Reading International E-Workshop on “Tarkāmṛtam”	Dept. of Sanskrit, Hijli College & Srikrishna College.	21 to 27 September, 2020
<b>Dr. Ashok Kumar Mahata</b>	Invited Lecture delivered	National Webinar entitled “Dwaipayana Vyas: The Embodiment of the Soul of India”	Sri Sri Sitaramdas Omkarnath Samskrita Siksha Samsad	3 to 5 July, 2020
	Invited Lecture delivered	“Vedadhyayane Adhikar O Yogyata” in the Three Day National Web-Lecture Series on “Vedadhyayane Adhikar O Yogyata” in the	Gobinda Prasad Mahavidyalaya	9 to 11 July, 2020
	Invited Lecture delivered	“Natural Resources and Public Health Management in the Vedic Age” in the International Webinar Lecture Series entitled “Environmental and Health Awareness in Present Pandemic Situation”	Mahishadal Raj College	14 to 23 September, 2020

**Annual Report 2020-2021**

<b>Dr. Kakali Ghosh</b>	Invited lecture (online) on “Veda: The dawn of Indian Philosophy” delivered on 29 August, 2020	‘International Workshop on Shad Darsana: Six Indian Philosophical Systems’	organised by the Kaivalyadhama Institute, Lonavala and its curation partner - The Dhī Project. (through Zoom)	1.5 hour duration
	Invited lecture (online) on “Mundaka Upanishad” delivered on 11 October, 2020	‘International Workshop on Essence of the Upanishads – Part I’	organised by the Kaivalyadhama Institute, Lonavala and its curation partner - The Dhī Project. (through Zoom)	1.5 hour duration
	Invited speech delivered on 25 June, 2020	2-Day National Level Web-Seminar on “Ākhyāyikā Vidyāstutyarth”,	organized under the supervision of Department of Sanskrit, Michael Madhusudan Memorial College, Durgapur [Streamed Live through Youtube Channel (Tattvabhava)] Cf. <a href="https://youtu.be/VexT6BuYSk8">https://youtu.be/VexT6BuYSk8</a>	25 to 26 July, 2020
	Invited Speech titled “Principal Upaniṣads: An Exploratory Approach to Yoga” delivered as Resource Person on 15 August, 2020	Two-Day National Level Webinar on “Yoga-Vedānta: The Grand Unification”	organised by Bharata Vidya Charcha Kendra, Burdwan [Streamed Live through Youtube Channel] Cf. <a href="https://youtu.be/xACe9VmFHxs">https://youtu.be/xACe9VmFHxs</a>	15-16 August 2020
	Delivered Keynote Address on 22 June, 2020	5-Days Online Workshop on “Elements of Sanskrit Poetics in the	organized under the supervision of Department of Sanskrit, Michael Madhusudan Memorial College,	1.5 hour duration

**Annual Report 2020-2021**

		Abhijñāna- Śākuntalam”	Durgapur from 22 to 26 June, 2020. [through Google Meet]	
	Invited speech	State Level Webinar on “শাস্ত্র, অধিকারী এবং বর্তমান শিক্ষা ব্যবস্থা” (Scriptures, Entitled & Modern Educational System)	organized by Gushkara Mahavidyalaya on 4 September, 2020. [Streamed Live through Youtube Channel] Cf. <a href="https://youtu.be/nw_EMinayOc">https://youtu.be/nw_EMinayOc</a>	30 minutes
<b>Dr. Shiuli Basu</b>	Invited Lecture delivered	“Rasasutram” in the Three-Days National Webinar	Maharshi Vyasadev National Research Institute, Rourkela, Odisha	19 June, 2020
	Invited Lecture delivered	“Śrīmadbhagavadgītā”	Sanskrit Department, Sadhan Chandra Mahavidyalaya, Falta, West Bengal	15 July, 2020
	Invited Lecture delivered	“Tarashankarer jiban o sahitya abalambane mahamarir bishleshan” in the Four-Day National Level Webinar on “Indian Literature and Pandemic: Measures and Management”	Department of Sanskrit, Jadavpur University, Kolkata	19 to 22 January, 2021

**Annual Report 2020-2021**

<b>Dr. Debdas Mandal</b>	Delivered invited lecture	“Determining the Diseases and the Way to Alleviate in the Light of Purānas” in the International Level Webinar entitled “The Effects of Torrid Environment on Our Society and Health”	Vaidika Sanskrit Vidyapitham (Affiliated to Vangio Sanskrit Sikṣā Parisad, Govt. of West Bengal) Vaidika Sanatan Varnasshram Math, Bahirkhand, Hooghly	25 June, 2020
	Delivered invited lecture	“Disease and its Remedy in Sanskrit Nīti Literature : An Evaluation” in the Present Perspective in a 10 Day (14 to 23 September, 2020) International Webinar Lecture Series on “Environmental & Health Awareness in Present Pandemic Situation: Special reference in Ancient Vedic, Sanskrit, Pali and Prakrit Literature”	Department of Sanskrit, Mahishadal Raj College, Purba Medinipur	19 September, 2020
	Delivered invited lecture	“The Role of the State in epidemics in Ancient India: Modern Review” in the International webinar on “Folk Performance, State and Epidemic”	Dr. Pashupati Prasad Mahato Memorial Committee in Collaboration with Department of Sanskrit, Jadavpur University	21 December, 2020
	Delivered invited lecture	“Sukranīte Upalabdha Rājadharmar Prāsangika Viṣaya: Ekti Samayaānug Paryavekṣaṇa”	Howrah Sanskrit Sahitya Samaj.	18 February, 2021
	Delivered invited lecture	“Sanskrita Sāstre Praśāsanika Parichalan Paddhati”	Howrah Sanskrit Sahitya Samaj.	03 April, 2021
<b>Dr. Chinmay Mandal</b>	Invited Lecture delivered	“The necessity of Ayurveda in human life” in the Two-day National Workshop on “The Āyurveda in our daily life”	Dept. of Sanskrit, Bejoy Narayan Mahavidyalaya, Itachuna	30 minutes 20 to 21 July, 2020

**Annual Report 2020-2021**

	Invited Lecture delivered	“Tarkasaṁgrāhe Kāraḱavimarśah”	Dept. of Sanskrit, Bejoy Narayan Mahavidyalaya, Itachuna	One hour 5 August, 2020
	Invited Lecture delivered	Three-days International Webinar on “Polity of Mahābhārata in the Context of Present Perspective”	Department of Sanskrit, Sadhan Chandra Mahavidyalaya	30 minutes 21 to 23 September, 2020
	Session Chaired	Four-Day National Level Webinar on “Indian Literature and Pandemic: measures and Management”	Department of Sanskrit, Jadavpur University	Two hours 19 to 22 January, 2021

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Shiuli Basu</b>	Webinar on “Elements of Eradication of COVID-19 in Sanskrit Literature”	Department of Sanskrit, Yogoda Satsanga Palpara Mahavidyalaya in collaboration with Midnapore College (Autonomous), West Bengal	3 August, 2020-6 hours
	Two-Days National Webinar on “Life Management Vs Pandemic Situation: Contain and Context Sanskrit Literature”	Department of Sanskrit and IQAC, Malda College, Malda	17– 18 August, 2020
	Workshop on “Patanjala Yoga Sutra”	Ritambhara Prajna, Howrah	12 – 20 June, 2020
<b>Dr. Chinmay Mandal</b>	Eight-Days Text Reading Online Workshop on ‘Tarkasaṁgrāha of Annambhatta’	Dept. of Philosophy, Government Degree College, Manbazar-II, Purulia, W.B.	40 hours 23– 30 June, 2021
	Two-Days National Webinar on ‘Yoga and the Quest for Well-being’.	Dept. of Philosophy, Bankura Zilla Saradamani Mahavidyapith, Bankura, W.B.	8 hours 3– 4 July, 2020
	International Webinar on ‘The Basic Concepts of Dharma and Religion in Relation to Eastern and Western Philosophy.’	IQAC and Dept. of Sanskrit, Barabazar B.T.M. College, Purulia, W.B.	2 hours 04 July, 2020
<b>Dr. Bikash Sardar</b>	Two-Days National Webinar on “Linguistics and Sanskrit: The Heritage and Possibilities”	Department of Sanskrit in collaboration with the IQAC of Jamini Roy	15 and 16 July, 2020

### Annual Report 2020-2021

		College, Beliatore , Bankura	
	Two-Days National Webinar on “The Role of Ayurveda in Our Daily Life”	Department of Sanskrit, Bejoy Narayan Mahavidyalaya, Itachuna, Hooghly, W.B.	20 -21 July, 2020
	One Day Online Webinar on “The Management in the Light of Śrīmadbhagavadgītā”	Department of Sanskrit in collaboration with IQAC of Dr. B. R. Ambedkar Satabarshiki Mahavidyalaya	20 July, 2020.
	International Webinar on “Yoga as a Means of Healthier Lifestyle During Corona Virus Pandemic”	Department of Physical Education, University of Kalyani	22 July, 2020
	Two-Days National Level Web-Seminar on “Ākhyāyikā Vidyāstutyarthā”	Department of Sanskrit, Michael Madhusudan Memorial College, Durgapur	25- 26 July, 2020
	National Webinar on “भारतीयदर्शनेषुजीवात्मतत्त्वम् ”	Department of Sanskrit & IQAC, Sree Chaitanya College, Habra.	27-28 July, 2020
	Two-Days International Webinar on “Humanism in Indian Education”	Department of Sanskrit & IQAC, Chakdaha College, Nadia, W.B.	9-10 August, 2020

**6. Major Achievements of the Department during the year:**

**C. Awards received by Research Scholars/students:**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
<b>Dr. Priyanka Saha</b>	Ph.D	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Dr. Debanjan Maity</b>	Ph.D	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Sri Swagata Biswas</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Sri Bulet Mandal</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Lipi Barman</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Sir Akbar Ali</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Ritapa Chakraborty</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Trilachan Sing Sardar</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Sonia Mukherjee</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.



**Annual Report 2020-2021**

<b>Konelia Sarkar</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Sabana Yasmin</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Achintya Kumar Pal</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Saikat Bera</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Antara Roy</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.
<b>Lakshmikanta Murmu</b>	M.Phil	Jadavpur University	Department of Sanskrit, Jadavpur University.

**D. Any Other Major Achievements:**

**Prof. Tapan Sankar Bhattacharyya**

1. Member of Board of Studies in the **P.G.** level in the Department of Sanskrit, Vidyasagar University.
2. Member of Board of Studies in the **P.G.** level in the Department of Sanskrit, Midnapore College (Autonomous).
3. Member of Board of Studies in the **P.G.** level in the Department of Sanskrit, Ramakrishna Mission Vivekananda University.
4. Member of Board of Studies in the **P.G.** level in the Department of Sanskrit, Ramakrishna Mission Vidyamandira, Belur Math.
5. Member of Board of Studies in the **P.G.** level in the Department of Sanskrit, Diamond Harbour Women's University.
6. Member of Board of Studies in the **U.G.** level in the Department of Sanskrit, West Bengal State University.
7. Member of the **Doctoral Research Committee(DRC)** in the Department of Sanskrit, University of Calcutta.
8. Member of the **Doctoral Research Committee (DRC)** in the Department of Sanskrit, Ramakrishna Mission Vivekananda University.
9. Member of the **Doctoral Research Committee (DRC)** in the Department of Sanskrit, Ramakrishna Mission Vidyamandira, Belur Math.
10. Member of the **Doctoral Research Committee (DRC)** in the Department of Sanskrit, The University of Burdwan.
11. Guest Lecturer in the **P.G.** level in the Department of Sanskrit, The Sanskrit College & University, from January 2020 to June 2020.

**Dr. Debdas Mandal**

1. Departmental Coordinator of the **P.G** Evening Courses in the Department of Sanskrit, J.U., 2020-2021.
2. Programme Officer, National Service Scheme (NSS), Jadavpur University, 2019-2020.

**8. Students Progression during the year:**

<b>Name of the Examination</b>	<b>No. of students selected/ qualified</b>
NET	10

## Annual Report 2020-2021

### SOCIOLOGY

Phone: 033-2457-2555

H.O.D : Dr. Piyali Sur

Prof. Amites Mukhopadhyay (since 14.2.2021)

E-mail: hod.sociology@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

The department looks upon sociology and its pursuits as uniquely situated at the interface of a unique biography and embedded history. The pursuit of sociology at the department instils in students a capability to look at this interface critically and with considerable empathy. In Sociology one is trained to interrogate the taken-for-granted world, thereby de-familiarizing the familiar social universe. In so doing students acquire sociological sensibilities and acumen that provides them with necessary faculties to sharpen their observational ingenuity and develop their analytical capability. In a very important sense Sociology thus empowers its students and practitioners, equipping them with powerful insights into the social forces and processes that mould human lives and experiences, opportunities and constraints, and problems and possibilities in the contemporary, and historically specific, modern society. This is the liberating spirit that animates and inspires everyone who is concerned with the academic programmes and activities in the Department of Sociology at Jadavpur.

##### B. Mission:

The pursuit of sociology at Jadavpur is committed to the situated understanding of distinct lifeworlds and social contexts. Such an understanding made possible by critical pedagogy and research is of crucial relevance in transforming our bounded and much settled universe.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BA	3	1 <sup>st</sup> year	50
		2 <sup>nd</sup> year	50
BA		3 Year	50
MA	2	1 year	40
MA		2 year	40
MPhil	2	1 Year	20
MPhil	2	2 year	20

#### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
3	0	2	4

## Annual Report 2020-2021

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

Research specialisations of the teaching faculties are found to be along the following the thematic areas: Anthropology of environment and development particularly the wetlands in south Asian context, identity politics, social histories of institutions of science and knowledge making in Indian context, urban social, political and environmental processes, gender and sexuality, childhood studies, sociology of crime and deviance, sociology of work and Industry, visuals, culture, cities, market, sociology of religion, sociology of marginalized communities.

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
“Cultures of Consumption: A study in a metropolis”	Departmental	Amites Mukhopadhyay, Dalia Chakraborty, Piyali Sur and Nutan M. Tigga	RUSA 2.0	1 year
“Parents reflecting on risk to body and sexuality: growing up in a neoliberal consumer culture of global south”	individual	Piyali Sur	RUSA 2.0	1 year
“Block Bazaars of New Town: An Ethnographic Exploration.”	individual	Dalia Chakraborty	RUSA 2.0	1 Year

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	22

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

##### National peer reviewed:

Amites Mukhopadhyay, ‘Yogendra Singh: Remembering the Sociologist (1932-2020)’, Sociological Bulletin, Vol. 69 issue 3, page 402-13, December 2020.

##### International peer reviewed:

Chakraborty Dalia. The Inedible: Visuals and Food Anxiety, People: International Journal of Social Sciences, Vol 6, issue 2: 340-361, 10.08.2020.

## Annual Report 2020-2021

### International peer reviewed:

Piyali Sur, Discipline and Surveillance: Adolescent Girls talk about Body and Sexuality, A Case Study from Kolkata, India, Journal of International Women's Studies Vol. 22, Issue 1, pp. 401-416, 2021.

### National Peer reviewed:

Nutan Marian Tigga

Loss of Life Chances of Migrant Labourers in India in the Face of Corona Virus Pandemic, Mizoram University Journal of Humanities and Social Sciences, Volume No. –VI, Page/Article No.- 84-94, Year of publication -2020

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. **Nutan Marian Tigga**, NEW DIRECTIONS FOR HUMANITY AMIDST COVID-19 PANDEMIC CRISIS, in REVIVING HUMANITY DURING PANDEMIC IN INDIA, SHREYA CHAKRABARTY, T. SATHYAKALA, SUNIL K. MISHRA, Page no.-18, UPANAYAN PUBLICATIONS, ISBN/ISSN No.-978-81-949267-1-9, Year- 2021
2. **Nutan Marian Tigga**, ENVIRONMENTAL CONCERNS IN CONTEMPORARY WORLD, Dr. Chitra VS, Dr. Balamurali R.S, Page no. -47,UPANAYAN PUBLICATIONS, ISBN- 978-81-949250-4-0, Year- 2021

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year):

**Piyali Sur**, Children, Consumption and Parenting Practices, Childhood and intersectionality in the Indian context, page no. 43-48, Avenel Press, ISBN 978-81-949068-7-2

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### C. Seminar/Workshop/Conference/Symposium Organized:

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Children and Childhood in Selected Bengali Literature	<b>Prof. Piyali Sur</b>	No	National webinar	14February,2021

#### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
<b>Nutan Marian Tigga</b>	ORIENTATION PROGRAMME- Online Faculty Induction Programme	KANNUR UNIVERSITY- UGC HRDC	03September,2020--02October,2020

## Annual Report 2020-2021

### F. Invited Lectures Delivered/Sessions Chaired:

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Dalia Chakraborty</b>	Invited lecture delivered on Teaching-Learning in New Normal: Constraints and Opportunities	Webinar organized by Department of Sociology, Salesian College, Siliguri in collaboration with IQAC.	Online lecture	19 November, 2020
<b>Dalia Chakraborty</b>	Invited lecture delivered on Social Security and Disaster	One week online Certificate Course on Disaster Preparedness and Safety, organized by Centre for Disaster Preparedness and Management, Jadavpur University	Online lecture on 19.12.20	14 -19 December, 2020
<b>Dalia Chakraborty</b>	Invited lecture delivered on Reading and Analysing Text: Words and Images	Lecture Series on Research Methodology: Context, Usage and Paradigm Shift in Contemporary Parlance, Department of Sociology, University of Calcutta	Online lecture on 27.01.21	11-29 January, 2021
<b>Piyali Sur</b>	Invited lecture	Women in leadership: Let's Choose to Challenge the world'	Adamas University, Kolkata	45 minutes
<b>Piyali Sur</b>	Invited lecture	Childhood and intersectionality in the Indian context	Hiralal Mazumdar College, Kolkata	25 minutes
<b>Piyali Sur</b>	Invited lecture	Feminist Research: Theory and Practice'	Adamas University, Kolkata	45 minutes
<b>Piyali Sur</b>	Chaired	Covid -19 Pandemic: Deepening Inequalities for Marginalized Children in India	Sister Nivedita University, Kolkata	1 hour
<b>Amites Mukhopadhyay</b>	Chaired session	Culture Matters	Rajdhani College, University of Delhi	22-23 March, 2021
<b>Amites Mukhopadhyay</b>	Invited Lecture	Faculty Induction Programme. The topic of lecture is Research	UGC-HRDC University of Calcutta	19 March, 2021

**Annual Report 2020-2021**

		Methods in social sciences		duration 180 minutes
--	--	----------------------------	--	----------------------

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Nabanita Das</b>	IMPACT OF COVID 19 LOCKDOWN AND CYCLONE AMPHAN ON THE ISLAND VILLAGERS RESIDING IN THE SUNDARBANS DELTA OF WEST BENGAL	ENVIRONMENT AND SOCIETY(ICES, 2020)	NEW DELHI	26-28 December, 2020
<b>NUTAN MARIAN TIGGA</b>	Loss of freedom and life chances for labourers in the face of covid-19	Mid-term webinar on migration, Indian Diaspora, Marginalised Communities and Covid-19	Online	18 July, 2020
<b>NUTAN MARIAN TIGGA</b>	Loss of Freedom and life chances in the face of corona virus pandemic	2 <sup>ND</sup> International interdisciplinary conference on “ freedom and Authenticity” Online- virtual	Online- virtual	9-10 July, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Dalia Chakraborty</b>	Webinar on “Of Journeys, People and the Unknown: Qualitative Social Research and the Fulbright Experience ” by Fulbright-Nehru alum, Dr. Nayanee Basu, organized by United States-India Educational Foundation(USIEF), Kolkata	Virtual Mode	12 August, 2020
<b>Nutan Marian Tigga</b>	UGC SPONSORED ONE WEEK WORKSHOP ON RESEARCH METHODOLOGY	UGC -HUMAN RESEARCH DEVELOPMENT CENTER, JAMIA MILIA ISLAMIA, NEW DELHI {ONLINE	17 - 23 December, 2020

### Annual Report 2020-2021

<b>Nutan Marian Tligga</b>	Educational Transition during Covid-19 pandemic: Opportunities and challenges of Online education	St. Xavier's College, Ranchi {ONLINE}	2 July, 2020
<b>Nutan Marian Tligga</b>	Space technology which has changed our lives and Applications of microwave	Mizoram University {ONLINE}	14 July, 2020
<b>Nutan Marian Tligga</b>	COVID-19, Aviation and Tourism: Implications for Destinations and Managers of Tourism Enterprises	Mizoram University {ONLINE}	31 July, 2020
<b>Nutan Marian Tligga</b>	Investigation of new potential treatment for diabetes, cancer and Covid-19	Mizoram University {ONLINE}	6 July, 2020
<b>Nutan Marian Tligga</b>	Software Development - Waterfall vs Agile Methodology	Mizoram University {ONLINE}	13 July, 2020
<b>Nutan Marian Tligga</b>	Life and Livelihood of the Migrants in India: Lessons Learnt from the Pandemic	SURENDRANATH COLLEGE, KOLKATA DEPARTMENT OF ECONOMICS {ONLINE}	6 July, 2020
<b>Nutan Marian Tligga</b>	International Webinar on "Positive Supervision"	Mizoram University {ONLINE}	7 July, 2020
<b>Nutan Marian Tligga</b>	POSITIVE COGNITIVE BEHAVIORAL THERAPY	Mizoram University {ONLINE}	6 July, 2020
<b>Nutan Marian Tligga</b>	NAAC Supported One Day National Webinar on "A Pathway for quality assurance"	Bankura Zilla Saradamani Mahila Mahavidyalaya, Nutanchati, Bankura in collaboration with Jamini Roy College, Beliatare, Bankura	12.07.2020
<b>Nutan Marian Tligga</b>	IGIS Geospatial Applications and CAD in the Era of Modern Technology	MIZORAM UNIVERSITY {ONLINE}	7 July, 2020
<b>Nutan Marian Tligga</b>	26 <sup>th</sup> INTERNATIONAL DAY OF THE WORLD'S INDIGENOUS POPULATION 2020	DEPARTMENT OF TRIBAL STUDIES, INDIAN SOCIAL INSTITUTE NEW DELHI {ONLINE}, ALL ADIVASIS DELHI-NCR,	1-9 AUGUST, 2020

## Annual Report 2020-2021

		INDIA INDIGENOUS PEOPLE (IIP) {ONLINE}	
--	--	--	--

**Amites Mukhopadhyay** was invited as a resource person to evaluate a presentation session by teachers at a Refreshers course on Exploring the Urban: In Time and Space at Jadavpur University History department.

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
10	BA	MA	South Asian University Delhi, ABBS School of Management, Azim Premji University, Bangalore, Christ University, St Xavier's University Kolkata, TISS Mumbai, TISS Hyderabad, Sarsuna Law College, Bielefeld University, Germany
3	MA	MA (second MA degree)	ICFAI Business School, NLSIU, Bangalore, London School of Economics, UK
4	MA	Ph.D	Kalyani University, Raiganj University, ISEC, Bangalore

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	5 NET and 1 NET with JRF



**FACULTY COUNCIL OF ENGINEERING & TECHNOLOGY:  
DEPARTMENTS**

## Annual Report 2020-2021

### ARCHITECTURE

Phone: 033-2457-2624/2209

H.O.D : Dr. Debashish Das

E-mail: hodarchitecture@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

**A. Vision:** Jadavpur University established in 1955, while playing a vital role in technical education in the country, may be said to rest on three pillars-Technology, Science and Arts. It is at present an internationally recognized premier university of the country. It is an urban university with a global perspective and is dedicated to creating leaders who will fashion a more humane and just world. Following in the footsteps of its predecessor, the University not only engages itself in teaching and research of international quality, but also provides societal services for the benefit of rural and urban populations. The Department of Architecture is directed towards achieving excellence in education and extending the benefits of improved technology to the society as a whole. The faculty members are encouraged to add value to the courses so that students can secure employment or attempt entrepreneurship.

**B. Mission:** The Department wishes to grow further as a diverse and socially responsible learning community, providing a high quality of architectural education and equal opportunity for all.

The Department's core values include a commitment to:

- The highest standards of excellence in teaching, research, creative expression and service to the community;
- Advanced learning as a humanizing social practice rather than as a competitive exercise;
- Regarding the production and dissemination of knowledge as inseparable goals;
- Upholding the principle that the culture of reason and learning is indivisible from a concern for the world beyond the campus;
- Maintaining principles of democratic governance and intellectual and institutional freedom.

#### 2. Academic Activities:

##### B. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B. Arch.	5	1 <sup>st</sup> year	40
		2 <sup>nd</sup> year	40
		3 <sup>rd</sup> year	40
		4 <sup>th</sup> year	40
		5 <sup>th</sup> year	40
M. Arch			10

## Annual Report 2020-2021

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
9	0	3	8

### 4. Research Activities:

#### A. Areas of Research Activities:

**Prof. Dr. Shubhrajit Das:** Architecture History, Theory, Criticism and Pedagogy

**Prof. Tapas Kumar Bhattacharyya:** Biomorphic architecture, Building construction & Building services.

**Prof. Dr. Jayita Guha Niyogi:** Town and Regional Planning, Transportation Planning, Integrated Land use and Traffic System

**Prof. Dr. Shivashish Bose:** Theory of Architecture & Urban Design; Architectural Design for Thermal Comfort & Energy Efficiency; Architectural and Urban Conservation; Urban Hydrology, Environmental Planning; Sustainable Development

**Prof. Dr. Madhumita Roy :** Energy Efficient Architecture.

**Prof. Dr. Suchandra Bardhan:** Sustainability and Resource-efficiency in buildings, Urban landscape, Cultural landscape, natural resources, and environment.

**Prof. Dr. Sanjib Nag:** Methodological Parametric Study of Urban Transformations and Related Urban Developments, From Architecture Design and Urban Design viewpoint.

**Prof. Dr. Debashish Das:** Urban Microclimate Analysis, Urban Heat Island Mitigation, Urban Planning and Human Bio- meteorological approaches in urban planning

**Prof. Dr. Mainak Ghosh:** Urban Studies, Environmental Perception, Aesthetics & Cognition, Design Thinking, Strategic Innovation, Indigenous studies in relation to built form, creative economy, culture and community.

**Mrs. Sanghamitra Sarkar:** Urban Design, Urban Transformation, Inclusive Design, Architectural History.

**Ms. Dechen Donka Bhutia:** Urban conservation, Building construction, etc.

**Mr. Tanmoy Datta :** Architecture, Urban Design and Related Urban Transformations & Urban Developments.

#### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Land Use Mapping; Land Use & Transportation planning; Heritage, Urban studies of select areas in West Bengal	At the level of Centre for Human Settlement Planning, Dept. of Architecture	<b>Prof. Dr. Jayita Guha Niyogi</b>	Self-funded	

## Annual Report 2020-2021

‘Geoinformatics led Inquiries into Tourism Development in the Indian Sundarban and its Impacts on Landuse-Landcover Change: Understanding for Better Planning’.	Individual	<b>Prof. Dr. Suchandra Bardhan</b>	GoWB-Science & Technology and Bio-Technology Department (WBDSTBT)	Three years from April 2019
Exploring Transformation Of Commercial Centers And Process Of Urban Development In A City	Individual	<b>Prof. Dr. Sanjib Nag</b>	JU – RUSA 2.0	2 Years.
Studying Evolution of Human Settlements In And Around Sacred Precincts.	Individual	<b>Prof. Dr. Sanjib Nag</b>	JU – RUSA 2.0	2 Years.
“Urban Heat Island Mitigation Strategies for existing Building Codes, Regulations, and Urban Planning guidelines for Tropical Climates-Case study of Kolkata”	Individual	<b>Prof. Dr. Debashish Das</b>	JU – RUSA 2.0	2 Years.
Framework for documentation... creative economic settlements in case of Global south	Individual	<b>Prof. Dr. Mainak Ghosh</b>	JU – RUSA 2.0	2 Years.
Adaptive Built Environment solutions... harvesting of renewable resources	Individual	<b>Prof. Dr. Mainak Ghosh (Co-PI)</b>	JU – RUSA 2.0	2 Years.

### D. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Deptatment
3	21

### E. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No.,Page No./Article No., Year of publication)

**Prof. Dr. Jayita Guha Niyogi** (Co-author) : Paratransits or intermediate Transits: a boon or bane towards Sustainable urban mobility in Kolkata -Journal of Emerging Technologies and Innovative Research (JETIR) ISSN-2349-5162, Volume 8, Issue 5, f612-f625- © 2021 JETIR May 2021.

## Annual Report 2020-2021

**Prof. Dr. Jayita Guha Niyogi** (Co-author) : "Ghar - A Wellness Centre For Mentally Ill Adolescents"- Journal of the Indian Institute of Architects ISSN-0019-4913, Volume 86, Issue 09, Pg 27- 34. September 2021

**Prof. Dr. Jayita Guha Niyogi** (Co-author):

KromanusarikPotobhumiteUnobingshoShotabdirBanglarSthapotyo O Nogarayan- AntorjaticPathsala ISSN: 2330-9594, Vol 10: Issue: 3 / 09 – 29, July. September 2021

**Prof. Dr. Suchandra Bardhan** (Co-author):Understanding the relationship between density and neighbourhood environmental quality – a framework for assessing Indian cities. International Journal of Sustainable Development and Planning, 1743-7601 (Print); 1743-761X (Online), **15** (7), pp. 1067-1079. November 2020.

**Prof. Dr. Suchandra Bardhan** (Co-author) : Assessing Energy Intensity of Beach Hotels in an Upcoming Tourist Destination in West Bengal, India.International Journal of Advanced Research in Engineering and Technology,Online ISSN: 0976-6499, **12** (3), pp. 511-519, March 2021.

**Prof. Dr. Sanjib Nag** (Co-author) : Assessing Accessibility In Residential Neighbourhoods Of Colonial Towns : Case Of Little Europe, West Bengal- International Journal Of Housing And Human Settlement Planning, Vol. 06,Issue 01, Pages 13–16 - May 2020.

**Prof. Dr. Mainak Ghosh** (Co-author): Establishing a Generic Process Framework for Design and Analysis of Materials based on Visual Perception: Study through Two Cases-MRS Advances – Cambridge University Press-vol. 5 (23-24),pp.1167-1174,Sep 2020

**Prof. Dr. Mainak Ghosh** (Co-author): Perceiving Identity of Period Interiors Based on Visual characteristics: Comparing Aesthetics of Renaissance in England and France, Journal of Interior Designing and Regional Planning, e-ISSN: 2581-9984, Vol. 5 (2), pp. 5-14, Jul -Dec 2020

**Mrs. Sanghamitra Sarkar** (Co-author): ‘Canal-Oriented Development: Integrating an urban canalfront with the city’, Territory of Research on Settlements and Environment: International Journal of Urban Planning, Volume 13 Number 24 :Agopuntura Urbana & Art Infoscape 2,47-65, e-ISSN 2281-4574, 2020.

**Mrs. Sanghamitra Sarkar** (Co-author): ‘Contextualizing and analyzing the urban design parameters for a successful Canal-Oriented Development in an urban context’, High Technology Letters, international Journal, ISSN 1006-6748, Volume 26, Issue 6, 123-129, 2020.

### F. Research Articles Published in Conference Proceedings during the year

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

**Prof. Dr. Jayita Guha Niyogi** (Co-author): Addressing Informal Public Transport Vehicle Problem in Kolkata,Lecture Notes in Civil Engineering, Recent Advances in Traffic Engineering Select Proceedings, RATE 2018 ISBN 978-981-15-3741-7 ISBN 978-981-15-3742-4 (eBook) Springer Nature Singapore Pte Ltd. – 2020, Pg 303 -326.

**Prof. Dr. Suchandra Bardhan** (Co-author) : Integrating a Heritage River in the Urban Form through Landscape Interventions: Studies on Adi Ganga, Kolkata, e-Conference e-proceedings of *Cities in the 21st Century – ISUF2020*, Salt Lake City, Utah, USA organized by The International Seminar on Urban Form ISUF) from 01 - 04 September 2020, pp. 446.

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year

Rendered Architectural Consultancy Services to M/s. Ardhendu Bikas Das, Purba Medinipur for the proposed FOB Control Room at IOCL Haldia Refinery since July 2020. The work is ongoing until date.

**Annual Report 2020-2021**

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Dr. Suchandra Bardhan</b>	Panel Moderator	RUSA 2.0 International Seminar on 'Megacities: Conviviality and its limits'.	Jadavpur University	26-28 February 2020.
<b>Prof. Dr. Sanjib Nag</b>	Sessions Chaired	National Online Conference on Planning, Design and Management	Civil Engineering Department College of Engineering, Pune	February 2021
<b>Prof. Dr. Debashish Das</b>	Invited Lecture	National Webinar on climate change-impact and adaptive strategies	Kolkata	September, 2020
<b>Prof. Dr. Mainak Ghosh</b>	Invited lecture delivered	International symposium on Decolonizing Heritage Exhibition: Architectural Heritage, craft and the cultural Landscape of South Asia	Online (Heritage Bangladesh Foundation)	29 August, 2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Dr. Jayita Guha Niyogi</b> (Co-author)	A LOGIT model for work trips in Kolkata	International Conference on Sustainable Urban mobility, SUMo 2020	Online Mode-organised by ITPI, WB Chapter, CHSP JU and several institutions	1-3 October, 2021
<b>Prof. Dr. Jayita Guha Niyogi</b> (Co-author)	Applications of Remote Sensing, GIS, and GPS in landuse change model building in urban growth prediction for the last 40 years: a review	43 <sup>rd</sup> Indian Geography Congress, Varanasi – 2021	Online mode-organized by Department of Geography, Institute of Science, Banaras Hindu University, Varanasi, U.P. – 221005	28 -30 October, 2021

### Annual Report 2020-2021

<b>Prof. Dr. Jayita Guha Niyogi</b> (Co-author)	Growth factors and their impact to revitalize Indian steel cities: Case study Durgapur	43 <sup>rd</sup> Indian Geography Congress, Varanasi – 2021	Online mode-organized by Department of Geography, Institute of Science, Banaras Hindu University, Varanasi, U.P. – 221005	28 -30 October, 2021
--	--	---	---	----------------------

#### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Dr. Suchandra Bardhan</b>	Webinar on ‘Managing Bio-Medical Waste in India: COVID 19 and Beyond’, organized by Centre for Science and Environment, New Delhi.	ONLINE	19 January, 2021
<b>Prof. Dr. Suchandra Bardhan</b>	Webinar on ‘Environmental Sustainability: Current Research and Developments’ organized by TEQIP-III, Jadavpur University.	ONLINE	19 March, 2021
<b>Prof. Dr. Suchandra Bardhan</b>	Webinar on ‘Renewable Energy and Water Resources’, 3 <sup>rd</sup> Annual Sustainability Fair 2021 organized by Dr. Kiran C Patel Centre for Sustainable Development, IIT-Gandhinagar.	ONLINE	26 March, 2021
<b>Prof. Dr. Suchandra Bardhan</b>	User Interaction Meet (UIM) 2021 on ‘A focus on Geospatial Solutions Potential with emerging reforms’, organized by NRSC, Hyderabad.	ONLINE	30 March, 2021
<b>Prof. Dr. Sanjib Nag</b>	A Critical Analysis of Western Indology In The  19 th. Century	Bharatiya Itihas Sankalan Samiti, West Bengal	June, 2020
<b>Prof. Dr. Debashish Das</b>	Assessment of Phase Changing Materials for Thermal Management of Buildings	Webinar, kolkata	10 July, 2020
<b>Prof. Dr. Debashish Das</b>	Abstracting and Indexing- how to get indexed and how to increase research input	Webinar, kolkata	September, 2020
<b>Prof. Dr. Debashish Das</b>	Art of writing research paper	Webinar, kolkata	September, 2020
<b>Prof. Dr. Debashish Das</b>	Climate Change and Cryospheric Biodiversity	Webinar, kolkata	June, 2020

## Annual Report 2020-2021

<b>Prof. Dr. Debashish Das</b>	Climate Change and Earth's Landscape	Webinar, kolkata	June, 2020
<b>Prof. Dr. Debashish Das</b>	Covid 19 and Environment	Webinar, kolkata	July, 2020
<b>Prof. Dr. Debashish Das</b>	IGBC Green League (IGL), a five-day training programme on Green Buildings organized by CII – IGBC	Webinar, kolkata	25 July, 2020
<b>Prof. Dr. Debashish Das</b>	Impact of Amphan on Socio-Economy and Environment of Sundarban	Webinar, kolkata	June, 2020
<b>Prof. Dr. Debashish Das</b>	Integrating Landscape into the Form and Fabric of Built Form	Webinar, kolkata	July, 2020
<b>Prof. Dr. Debashish Das</b>	Internet of Things for Energy Efficient Buildings		
<b>Prof. Dr. Debashish Das</b>	Landscape Illumination-Celebration of Nature's Light	Webinar, kolkata	July, 2020
<b>Prof. Dr. Debashish Das</b>	New Age Tools for Teaching Online	Webinar, kolkata	June, 2020
<b>Prof. Dr. Debashish Das</b>	One Week Online National Faculty Development Program on EContents and ICT Tools for Innovative and Effective Teaching & Learning Process	Webinar, Roorkee	August, 2020
<b>Prof. Dr. Debashish Das</b>	Pandemic and Societal Implications : India and her Neighbours	Webinar, kolkata	June, 2020
<b>Prof. Dr. Debashish Das</b>	Pandemic, Life and Development -Present challenges and Futuristic Resilience of Humankind	Webinar, kolkata	June, 2020
<b>Prof. Dr. Debashish Das</b>	PLanning Techniques and Data Analysis using SPSS and Rcmdr	Webinar, Jaipur	September, 2020
<b>Prof. Dr. Mainak Ghosh</b>	National Webinar on New API format of UGC 2019	Online	29 May, 2021
<b>Prof. Dr. Mainak Ghosh</b>	Edutech 2020	Online	24 September, 2020

### 6. Major Achievements of the Department during the year:

#### A. Any Other Major Achievements:

##### **Prof. Dr. Jayita Guha Niyogi**

1. Acted as external member of the Doctoral Scrutiny Committee for PhD thesis of Research Scholar at Dept of Architecture, T & R P, IEST, Shibpur.



## Annual Report 2020-2021

2. Attended One Week Online National Faculty Development Program on 'E-Contents and ICT Tools for Innovative and Effective Teaching & Learning Process' Organized by Roorkee College of Management & Computer Applications, Roorkee from 8-14 August, 2020.
3. Acted as Joint Coordinator and organized a Guest Lecture on 'Urban Transformations at KMA' and 'Planning initiatives taken by the Planning Authorities of West Bengal' delivered by Dr. Ranjan Chattopadhyay, Professor, Amity School of Architecture & Planning, Rajarhat, Kolkata & Ex-Director General, KMDA, Kolkata on 27<sup>th</sup> November, 2020, CHSP, Department of Architecture, Jadavpur University, via online mode for undergraduate and Post graduate students of Dept. of Architecture, Jadavpur University.
4. Acted as Joint Coordinator and organized a lecture on 'Participatory Planning at Draft Development Plan of Chandannagar, Hooghly' by Ar. Ranjan Chattopadhyay, Professor, Amity School of Architecture & Planning, Rajarhat, Kolkata & Ex-Director General, KMDA, Kolkata on 18<sup>th</sup> December 2020, CHSP, Department of Architecture, Jadavpur University, on online mode platform for undergraduate and postgraduate students of the Department of Architecture, Jadavpur University.
5. Attended an online course 'Quantitative Data Analysis using STATCRAFT' organized by SMDV University in collaboration with STATCRAFT, Bangalore from 1-5<sup>th</sup> February, 2021.
6. Attended an online course on 'Fundamentals of Remote Sensing and GIS Technology' (Course in Hindi) by IIRS-ISRO, Dehradun, India from 14-28<sup>th</sup> September, 2021.
7. Attended the online International Conference on Sustainable Urban mobility, SUMo 20, 1-3 October, 2021 organized by ITPI, India, West Bengal chapter.

### **Prof. Dr. Sanjib Nag**

1. A Member, Doctoral Committee, Dept. of Arch. T&RP, IEST, Shibpur, since 2013.
  2. An External Examiner, UG, PG & Doctoral levels, IITs, NITs & reputed Universities, since 2013.
  3. A Member, Inspection Committee, Council of Architecture, India, since 2015.
  4. A Member, Selection Committee, Public Service Commission,
  5. Govt. of W. Bengal, since 2017.
  6. A Member, Technical Expert Committee, Department of Fire & Emergency Services, Govt. of W. Bengal, since 2017.
7. **Extension Activities of the Department during the year:**
- A. **Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

### **Prof. Dr. Mainak Ghosh:**

- Supervision of online summer internship of two B.Tech students of Heritage Institute of Technology, Anandapur, Kolkata – 700107.
- Invited online lecture to the joint session of foundation programme for all undergraduate students of NIFT Kolkata.
- Invited lecture delivered online on "Role of Visual Perception in Design and Analysis of the Built Environment" organized by SMMCA, Nagpur
- Invited lecture delivered online on "Visualization of Architectural Space: Analysis through visual perception" organized by School of Architecture and Planning, Vellore Institute of Technology

### **B. Activities for the Society**

**Prof. Dr. Mainak Ghosh:** Participated as expert, on invitation in live television program of Prasar Bharati, Doordarshan (2020 – 21) spreading societal awareness about architecture and architectural education

**Prof. Dr. Mainak Ghosh:** Article on societal awareness for barrier free design titled as "Post-COVID-19 world needs more inclusive designs for persons with disabilities" in Down-to-earth magazine published on 14.9.2020

## Annual Report 2020-2021

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
Atreyee Sarkar	B.Arch	M. Des (User Experience Design)	MITID, Pune
Ekansh Mishra	B.Arch	M.BEM	SPA Delhi
Jyoti Sarkar	B.Arch	M.Plan(Urban and Regional Planning)	IEST Shibpur
Pratyay Banerjee	B.Arch	M. Des (Industrial Design)	IIT Roorkee
Rahul Chakroborty	B.Arch	M.Plan(Transportation)	SPA, New Delhi
Sanchari Mondal	B.Arch	M.Des	IISc Bangalore

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
GATE	14
CAT	3
GRE	2
TOFEL	3
Any Other	2

### CHEMICAL ENGINEERING

Phone: 033-2457-2246/2437

H.O.D : Prof. Debashis Roy

Prof. Ujjaini Sarkar (since 27.7.2020)

E-mail: hodchemical@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

To provide the education and training in chemical engineering science and practice for developing competence to meet the challenges of cutting-edge research, of emerging high technology in the CPI and of the demands of society at large.

##### B. Mission:

To inculcate an advanced chemical engineering knowledge to enable students to

- (a) translate fundamental discoveries in high technology areas to commercial exploitation

## Annual Report 2020-2021

- (b) adapt readily to the challenges presented in a diverse range of industrial sectors that can benefit from process engineering approaches, and
- (c) utilize experimental and computational skills in pursuing research projects of industrial and societal relevance.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students (approx.)
B.Ch.E	4yr	1 <sup>st</sup> year	120
		2 <sup>nd</sup> year	120
		3 <sup>rd</sup> year	120
		4 <sup>th</sup> year	120
M.Ch.E	2yr	1 <sup>st</sup> year	19
		2 <sup>nd</sup> year	19
M.BP.E	2yr	1 <sup>st</sup> year	10
		2 <sup>nd</sup> year	10
PhD			1

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
8	2	7	15

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

Name of Professor	Research Area
<b>Prof. Ranjana Chowdhury</b>	Chemical Engineering/ Biochemical Engineering Kinetics, Non-Conventional Energy, Bio-Chemical Engineering, Pollution, Abatement Technology
<b>Prof. Chiranjib Bhattacharjee</b>	Membrane Separation process, Waste-water treatment, Environmental pollution control and management, Valorization of the solid waste and management, Nanomaterial synthesis and application
<b>Prof. Avijit Bhowal</b>	Process Intensification, Heat and Mass Transfer; Pollution

**Annual Report 2020-2021**

	abatement
<b>Prof. Kajari Kargupta</b>	Hydrogen Energy, Fuel Cell, CO <sub>2</sub> utilization, Nanoscience and Technology, Heterogeneous catalyst, Photo and electro-catalyst, Thin films, Composites, Electro-polymers, Process modelling and Simulation
<b>Prof. Debashis Roy</b>	Bioprocess Engineering, Bioreactor Design, Bioresource Technology
<b>Prof. Ujjaini Sarkar</b>	Design and Modelling of Sewage Treatment Plants (STPs), Pharmaceutical treatment, Odor Assessment and Control, Modelling the Chemistry of Tropospheric Trace Gases, Bio-refinery
<b>Prof. Rajat Chakraborty</b>	Heterogeneous catalysis, nano-photocatalysts; Reaction Engineering/Process Intensification, Biomass Conversion/Biorefinery; Biodiesel/fuel additives/ Value added specialty chemicals, Engine performance and exhaust emission quality assessment, Advanced Drying Technology, Waste Valorization
<b>Prof. Papita Das</b>	Wastewater Treatment, Advanced Composite materials, Biofuel, Nano-Technology, Nano-coating materials, Polymeric composite synthesis and degradation, Bioremediation, Advanced Oxidation
<b>Dr. Prasanta Kumar Banerjee</b>	Energy Engineering, Petroleum Refinery Engineering, Petrochemicals
<b>Dr. Chanchal Mondal</b>	Fuels and Combustion
<b>Dr. Ratna Dutta</b>	Bio-indicators, Bio-monitoring of Environmental pollution, Microwave assisted accelerated solvent extraction technique, Microwave assisted unit operations, Process intensification, Bio-oil extraction
<b>Dr. Mehabub Rahaman</b>	Catalysis and Reaction Engineering, Separation with Chemical Reaction, Adsorption/Electrochemical Techniques in Wastewater Treatment, Chemical Process Development
<b>Dr. Parama Ghoshal</b>	Transport phenomena, Fluid mechanics for renewable energy sources and sustainable development, Solar ponds for sustainable development, CO <sub>2</sub> sequestration
<b>Dr. Shyamal Roy</b>	Catalysis, Waste-Water Treatment, Environment, Biofuel, Bioenergy, Advance Material, Energy
<b>Dr. Sudeshna Saha</b>	Interfaces and rheology, Preparation and characterization of nanomaterials, Waste-water treatment, Coating development, Surface characterization
<b>Dr. Saswata Bose</b>	Fabrication of carbon-based materials for high energy application especially as super-capacitor, Polymer nano-composite, Anaerobic digestion of biomass, Nanomaterial synthesis and its applications,

**Annual Report 2020-2021**

	Waste-water treatment, Adsorption
<b>Ms. Sujata Sardar</b>	Bioenergy, Biochemical Engineering

**B. Major Research Projects:**

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
Center for Technological Excellence in Water Purification (CTEWP)		Prof. Chiranjib Bhattacharjee	DST, India, WTI	5
Role of carbonaceous materials and cellulose nano-fibres polymeric composite for treatment of multiple pollutants present in waste water	Individual	Prof. Papita Das, Prof Chiranjib Bhattacharjee, Prof Avijit Bhowal	Industry sponsored project (Dalmia Holdings group limited)	5
Removal of pharmaceutical derivatives present in waste water by advanced oxidation integrating with microstructure and rotating packed bed of graphene (G)/Graphene oxide (GO)/GO-metal nanocomposites	Individual	Prof Papita Das, Prof Avijit Bhowal	DST WTI	3
Solar energy driven green hydrogen generation from water using reduced graphene oxide based photocatalysts and co-catalysts	Individual	Prof. Kajari Kargupta (PI), Prof. Dipali Baneree (IEST) Co-PI	DST-SERB	3
Environmental observatory: Modelling the photochemistry of surface ozone and its unusual precursors with a regional mod	Individual	Ujjaini Sarkar	ISRO	12
NanoLodge-Nano-selective, bio-mimetic membranes for integrated biotechnological production of biofuels from lignocellulosic biomass.	Individual	Ujjaini Sarkar	DST	3
Sustainable production of platform chemicals and fuel additives from lignocellulosic agro-industry wastes	Individual	Prof. Rajat Chakraborty	DST, WB	3

### Annual Report 2020-2021

Applied industrial research for the Thermolytic Recovery of Sludge Wastes for the Circular Economy and Biogeochemical Cycle	Individual	Prof. Rajat Chakraborty (CO-PI).	DST, India	2
Synthesis of Graphene oxide coated natural waste materials and its application for simultaneous treatment of wastewater containing fluoride and chromium: Reactor performance in batch, fluidized bed and membrane reactor	Individual	Prof. Papita Das	SERB DST	3
Zeolite-based low-cost hybrid membrane photo-bioreactor system for treating and recycling of high strength industrial wastewater	Individual	Prof. Papita Das (CO-PI).	IMPRINT - II	3
Synthesis of reduced graphene oxide using gamma irradiation and Detoxification of wastewater using reduced Graphene oxide based nano-coated composite in presence of Gamma/UV/photolytic radiation/irradiation technique	Individual	Prof. Papita Das	UGC DAE	3
Environmentally benign amine functionalized solid sorbent for fast and reversible CO <sub>2</sub> capture from air: Kinetics of temperature-vacuum swing adsorption/desorption system	Individual	Dr. Sudeshna Saha	DST-SERB	3

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
5	4

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

1. S. Pati, S. De, R. Chowdhury. Process modelling and thermodynamic performance optimization of mixed Indian lignocellulosic waste cogasification. *International Journal of Energy Research*, 45, 17175–17188, 2021. <https://doi.org/10.1002/er.6052>
2. S. Das, K. Nath, R. Chowdhury. Comparative studies on biomass productivity and lipid content of a novel blue-green algae during autotrophic and heterotrophic growth. *Environmental Science and Pollution Research*, 28(10), 12107-12118, 2021. <https://doi.org/10.1007/s11356-020-09577-4>

## Annual Report 2020-2021

3. A. K. Khan, **R. Chowdhury**. Parametric Sensitivity of Municipal Solid Waste Integrated Power Plant: CO<sub>2</sub> Footprint and Energy Analysis. *Chemical Engineering & Technology*, 44(2), 291-299, **2021**. <https://doi.org/10.1002/ceat.202000230>
4. S. Das, K. Nath, V. K. Gupta, **R. Chowdhury**. Studies on power plant algae assessment of growth kinetics and bio-char production from slow pyrolysis process. *Indian Chemical Engineer*, 63(2), 129-138, **2021**. <https://doi.org/10.1080/00194506.2020.1845987>
5. C. Roy, **R. Chowdhury**, P. Bhattacharya. Biofuel generation from high-fat effluent in a biofilm reactor with backwash. *Indian Chemical Engineer*, 63(2), 119-128, **2021**. <https://doi.org/10.1080/00194506.2020.1847698>
6. S. Dutta, S. Ghosh, D. Manna, **R. Chowdhury**. Energy and environmental performance of a near-zero-effluent rice straw to butanol production plant. *Indian Chemical Engineer*, 63(2), 139-151, **2021**. <https://doi.org/10.1080/00194506.2020.1831406>
7. S. Ghosh, S. Pathak, D. Manna, **R. Chowdhury**. Acidogenic mixed consortium isolated from soil of agricultural field: acid production behaviour and growth kinetics under the influence of pretreatment hydrolysate of rice straw (RS). *Indian Chemical Engineer*, 63(2), 206-218, **2021**. <https://doi.org/10.1080/00194506.2020.1815597>
8. J. Panda, **R. Chowdhury**. Growth kinetic study of electrochemically active bacterium *Shewanella putrefaciens* MTCC 8104 on acidic effluent of jute stick pyrolysis. *Indian Chemical Engineer*, 63(2), 193-205, **2021**. <https://doi.org/10.1080/00194506.2020.1803150>
9. S. Das, R. K. Calay, **R. Chowdhury**, K. Nath, F. E. Eregno. Product Inhibition of Biological Hydrogen Production in Batch Reactors. *Energies*, 13(6), 1318, **2020**. <https://doi.org/10.3390/en13061318>
10. S. Das, R. K. Calay, **R. Chowdhury**. Parametric sensitivity of CSTBRs for *Lactobacillus casei*: Normalized sensitivity analysis. *ChemEngineering*, 4(2), 41, **2020**. <https://doi.org/10.3390/chemengineering4020041>
11. S. Ghosh, S. Dutta, **R. Chowdhury**. Ameliorated hydrogen production through integrated dark-photo fermentation in a flat plate photobioreactor: Mathematical modelling and optimization of energy efficiency. *Energy Conversion and Management*, 226, 113549-113562, **2020**. <https://doi.org/10.1016/j.enconman.2020.113549>
12. S. Bhattacharya, D. Gupta, D. Sen, **C. Bhattacharjee**. Process intensification on the enhancement of allicin yield from *Allium sativum* through ultrasound attenuated nonionic micellar extraction, *Chemical Engineering and Processing - Process Intensification*, 169, 108610-108620, **2021**. DOI: 10.1016/j.cep.2021.108610
13. A. Mazumder, Z. Chowdhury, D. Sen, **C. Bhattacharjee**. Electric field assisted membrane separation for oily wastewater with a novel and cost-effective electrocoagulation and electroflotation enhanced membrane module (ECEFM), *Chemical Engineering and Processing-Process Intensification*, 151, 107918-107929, **2020**. DOI: 10.1016/j.cep.2020.107918
14. L. Das, **P. Das**, **A. Bhowal**, **C. Bhattacharjee**. Synthesis of hybrid hydrogel nano-polymer composite using Graphene oxide, Chitosan and PVA and its application in wastewater treatment, *Journal of Environmental Technology and Innovation*, 18, 100664-100680, **2020**. <https://doi.org/10.1016/j.eti.2020.100664>
15. L. Das, S. Sengupta, **P. Das**, **A. Bhowal**, **C. Bhattacharjee**. Experimental and Numerical modeling on dye adsorption using pyrolyzed mesoporous biochar in Batch and fixed-bed column reactor: Isotherm, Thermodynamics, Mass transfer, Kinetic analysis, *Surfaces & Interfaces*, 23, 100985, **2021**. <https://doi.org/10.1016/j.surfin.2021.100985>
16. L. Das, **P. Das**, **A. Bhowal**, **C. Bhattacharjee**. Treatment of malachite green dye containing solution using bio-degradable Sodium alginate/NaOH treated activated sugarcane bagasse charcoal beads: Batch, optimization using response surface methodology and continuous fixed bed column study, *Journal of Environmental Management*, 276, 111272-111283, **2020**. <https://doi.org/10.1016/j.jenvman.2020.111272>
17. S. Bhattacharya, P. Banerjee, **P. Das**, **A. Bhowal**, S. K. Majumdar, P. Ghosh. Removal of aqueous carbamazepine using graphene oxide nanoplatelets: process modelling and optimization, *Sustainable Environment Research*, 30 (17), 1-12, **2020**. <https://doi.org/10.1186/s42834-020-00062-8>

## Annual Report 2020-2021

18. R. Sarkhel, S. Sengupta, **P. Das, A. Bhowal**. Comparative biodegradation study of polymer from plastic bottle waste using novel isolated bacteria and fungi from marine source, *Journal of Polymer Research*, 27(16), **2020**. DOI : 10.1007/s10965-019-1973-4
19. P. Ganguly, A. Khan, **P. Das, A. Bhowal**. Cellulose from lignocellulose kitchen waste and Its Application for energy and environment: Bioethanol production and dye removal, *Indian Chemical Engineering Journal*, 63(2) 161-171, **2020**. <https://doi.org/10.1080/00194506.2020.1833765>
20. P. Ganguly, S. Sengupta, **P. Das, A. Bhowal**, Valorization of food waste: extraction of cellulose, lignin and their application in energy use and water treatment, *Fuel*, 280, 118581-118589, **2020**. <https://doi.org/10.1016/j.fuel.2020.118581>
21. P. Ganguly, R. Sarkhel, S. Bhattacharya, **P. Das, A. Bhowal**, A. Saha, Integral approach of treatment of phenolic wastewater using Nano-metal coated Graphene Oxide in combination with advanced oxidation, *Surfaces and Interfaces*, 21, 100660-100670, **2020**. <https://doi.org/10.1016/j.surfin.2020.100660>
22. S. Maitra, A. Sarkar, T. Maitra, S. Halder, **K. Kargupta**, S. Roy. Solvothermal Phase Change Induced Morphology Transformation in CdS/CoFe<sub>2</sub>O<sub>4</sub>@ Fe<sub>2</sub>O<sub>3</sub> Hierarchical Nanosphere Arrays as Ternary Heterojunction Photoanodes for Solar Water Splitting, *New Journal of Chemistry*, 45, 12721, **2021**. <https://doi.org/10.1039/D1NJ00864A>
23. P. Ghosh, S. Mandal, S. Majumdar, A. Sarkar, S. Ganguly, **K. Kargupta**. Enhanced power generation, faster transient response and longer durability of HT-PEMFC using composite polybenzimidazole electrolyte membrane with optimum rGO loading, *International Journal of Hydrogen Energy*, 45 (33), 16708-16723, **2020**. <https://doi.org/10.1016/j.ijhydene.2020.04.124>
24. S. Maitra, A. Sarkar, T. Maitra, S. Halder, S. Roy, **K. Kargupta**. Cadmium sulphide sensitized crystal facet tailored nanostructured nickel ferrite@ Hematite core-shell ternary heterojunction photoanode for photoelectrochemical water splitting, *MRS Advances*, 5 (50), 2585-2593, **2020**. DOI: 10.1017/S0021853720000353
25. R. Murmu, **D. Roy**, S.C. Patra, H. Sutar, P. Senapati. Preparation and characterization of the SPEEK/PVA/Silica hybrid membrane for direct methanol fuel cell (DMFC). *Polymer Bulletin*, **2021**. <https://doi.org/10.1007/s00289-021-03602-3>
26. D. Sahu, H. Sutar, P. Senapati, R. Murmu, **D. Roy**. Graphene, Graphene-Derivatives and Composites: Fundamentals, Synthesis Approaches to Applications. *Journal of Composites Science*, 5 (7), 181, **2021**. <https://doi.org/10.3390/jcs5070181>
27. D. Majumdar, R. Mondal, A. Periyasamy, N. Barman, S. Dey, S. Roy, P. Mandal, P. S. Rao, **U. Sarkar**. Characterization and sources of fine carbonaceous aerosol in winter over a megacity on Indo-Gangetic plain, *Urban Climate*, 39, 100964-100981, **2021**. <https://doi.org/10.1016/j.uclim.2021.100964>
28. B. Brahma, S. Sen, P. Sarkar, **U. Sarkar**. Interference-free electrocatalysis of p-chloro meta xylenol (PCMX) on uniquely designed optimized polymeric nanohybrid of P(EDOT-co-OPD) and fMWCNT modified glassy carbon electrode, *Analytica Chimica Acta*, 1168, 338595-338606, **2021**. <https://doi.org/10.1016/j.aca.2021.338595>
29. J. Jena, T. Das, **U. Sarkar**. Explicating proficiency of waste biomass-derived biochar for reclaiming phosphate from source-separated urine and its application as a phosphate biofertilizer, *Journal of Environmental Chemical Engineering*, 9 (1), 104648-104657, **2021**. <https://doi.org/10.1016/j.jece.2020.104648>
30. D. Banerjee, S. Basu, **U. Sarkar**. Removal of chlorhexidine gluconate in presence of a cationic surfactant using acid functionalized activated carbon: Validation of multicomponent models, *Journal of Environmental Chemical Engineering*, 8 (5), 104154-104163, **2020**. <https://doi.org/10.1016/j.jece.2020.104154>
31. S. Baksi, **U. Sarkar**, S. Mukherjee, J. C. Kuniyal, **S. Saha**. High-temperature tolerant enzyme-based extraction of lignocellulose derived C<sub>5</sub> and C<sub>6</sub> sugars for the integrated production of a promising supplement for a diesel/jet-engine fuel, *Fuel*, 275, 117740 -117750, **2020**. <https://doi.org/10.1016/j.fuel.2020.117740>
32. J. Jena, N. Narwade, T. Das, D. Dhotre, **U. Sarkar**, Yogesh Souche. Treatment of industrial effluents and assessment of their impact on the structure and function of microbial diversity in a unique Anoxic-



## Annual Report 2020-2021

- Aerobic sequential batch reactor (AnASBR), *Journal of Environmental Management*, 261, 110241-110253, **2020**. <https://doi.org/10.1016/j.jenvman.2020.110241>
33. C. Ghosh, S. Sinhamahapatra, H. S. Tripathi, **U. Sarkar**. Reverse Flotation of Natural Magnesite and Process Optimization Using Response Surface Methodology, *Transactions of the Indian Ceramic Society*, 79 (1), 23-29, **2020**. <https://doi.org/10.1080/0371750X.2019.1699864>
34. M. Maitra, S. Chatterjee, P. Mukhopadhyay, **R. Chakraborty**. (2020) Optimisation of accelerated biodiesel production under near infrared radiation from de-oiled mustard and sunflower cakes. *Indian Chemical Engineer*. Published online: 11 Oct 2020; <https://doi.org/10.1080/00194506.2020.1828192>
35. P. Mukhopadhyay, **R. Chakraborty**. LCA of sustainable biodiesel production from fried Borassus flabellifer oil in energy-efficient reactors: Impact assessment of multi fuel-additives on pour point, NOx and engine performance. *Sustainable Energy Technologies and Assessments*, 44, 100994, **2021**. <https://doi.org/10.1016/j.seta.2021.100994>
36. S. R. Chowdhury, **R. Chakraborty**. Intensified wheat husk conversion employing energy-efficient hybrid electromagnetic radiations for production of fermentable sugar: process optimization and life cycle assessment, *Environmental Science and Pollution Research* (Springer), 28, 58902-58914, **2021**. <https://doi.org/10.1007/s11356-021-12793-1>
37. **R. Chakraborty**, O. Roy. Sustainable energy-efficient conversion of waste tea leaves to reducing sugar: optimization and life-cycle environmental impact assessment; *Journal of Environmental Engineering and Landscape Management*, (Accepted; In press), **2021**
38. P. Pradhan, P. Karan, **R. Chakraborty**. Life cycle sustainability assessment of optimized biodiesel production from used rice bran oil employing waste derived-hydroxyapatite supported vanadium catalyst, *Environmental Science and Pollution Research*, **2021**. <https://doi.org/10.1007/s11356-021-16482-x>
39. V. Chakraborty, **P. Das**, P. Roy. Synthesis of nano-silica-coated biochar from thermal conversion of sawdust and its application for Cr removal: kinetic modelling using linear and nonlinear method and modelling using artificial neural network analysis, *Biomass Conversion and Biorefinery*, **2021**. <https://doi.org/10.1007/s13399-020-01024-1>
40. V. Chakraborty, **P. Das**, P. Roy. Graphene oxide-coated pyrolysed biochar from waste sawdust and its application for treatment of cadmium-containing solution: batch, fixed-bed column, regeneration, and mathematical modeling, *Biomass Conversion and Biorefinery*, **2021**. <https://doi.org/10.1007/s13399-020-01153-7>
41. D. Sikdar, S. Goswami, **P. Das**. Synthesis of activated carbon material using sawdust as precursor and its application for dye removal: batch study and optimization using response surface methodology, *Biomass Conversion and Biorefinery*, **2021**. <https://doi.org/10.1007/s13399-021-01385-1>
42. S. Mahanty, P. Tudu, S. Ghosh, S. Chatterjee, **P. Das**, S. Bhattacharyya, S. Das, K. Acharya, P. Chaudhuri. Chemometric study on the biochemical marker of the manglicolous fungi to illustrate its potentiality as a bio indicator for heavy metal pollution in Indian Sundarbans, *Marine Pollution Bulletin*, 173, 113017-113039, **2021**. <https://doi.org/10.1016/j.marpolbul.2021.113017>
43. S. Thakur, I. Mondal, S. Bar, S. Nandi, P. B. Ghosh, **P. Das**, T. K. De. Shoreline changes and its impact on the mangrove ecosystems of some Islands of Indian Sundarbans, North- East coast of India, *Journal of Cleaner Production*, 284, 124764-124785, **2021**. <https://doi.org/10.1016/j.jclepro.2020.124764>
44. A. Ganguli, P. Ganguly, **P. Das**, A. Saha. Integral approach for the treatment of phenolic wastewater using gamma irradiation and Graphene oxide, *Groundwater for Sustainable Development*, 10:100355, **2020**. <https://doi.org/10.1016/j.gsd.2020.100355>
45. S. Thakur, D. Maity, I. Mondal, G. Basumatary, P. B. Ghosh, **P. Das**, T. K. De. Assessment of changes in land use, land cover, and land surface temperature in the mangrove forest of Sundarbans, northeast coast of India, *Environment, Development and Sustainability*, 23, 1917-1943, **2021**. <https://doi.org/10.1007/s10668-020-00656-7>
46. S. Bhowmik, V. Chakraborty, **P. Das**. Batch adsorption of indigo carmine on activated carbon prepared from sawdust: A comparative study and optimization of operating conditions using Response Surface Methodology, **2021**, *Results in Surfaces and Interfaces*, 3, 100011-100018, **2021**. <https://doi.org/10.1016/j.rsurfi.2021.100011>

## Annual Report 2020-2021

47. S. Chatterjee, S. Mahanty, P. Chaudhuri, **P. Das**, S. Das. Biofabrication of iron oxide nanoparticles using manglicolous fungus *Aspergillus niger* BSC-1 and removal of Cr(IV) from aqueous solution, *Chemical Engineering Journal*, 385, 123790-123801, **2020**. <https://doi.org/10.1016/j.cej.2019.123790>
48. P. Ganguly, R. Sarkhel, **P. Das**. Synthesis of pyrolyzed biochar and its application for dye removal: Batch, kinetic and isotherm with linear and non-linear mathematical analysis, *Surfaces & Interfaces*, 20, 100616-100625, **2020**. <https://doi.org/10.1016/j.surfin.2020.100616>
49. S. Mahanty, S. Chatterjee, S. Ghosh, P. Tudu, T. Gaine, M. Bakshi, S. Das, **P. Das**, S. Bhattacharyya, S. Bandyopadhyay, P. Chaudhuri. Synergistic approach towards the sustainable management of heavy metals in wastewater using mycosynthesized iron oxide nanoparticles: Biofabrication, adsorptive dynamics and chemometric modeling study, *Journal of water Process Engineering*, 37, 101426-101445, **2020**. <https://doi.org/10.1016/j.jwpe.2020.101426>
50. S. Mukhopadhyay, **R. Dutta**, **P. Das**. A critical review on plant biomonitors for determination of Polycyclic Aromatic Hydrocarbons (PAHs) in air through solvent extraction techniques, *Chemosphere*, 251, 126441-126461, **2020**. <https://doi.org/10.1016/j.chemosphere.2020.126441>
51. S. Mukhopadhyay, A. Dhara, **R. Dutta**. Assessment of air pollution tolerance index of *Murraya paniculata* (L.) Jack in Kolkata metro city, West Bengal, India, *Urban Climate* 39, 100977-100993, **2021**. <https://doi.org/10.1016/j.uclim.2021.100977>
52. **S. Bose**, A. Ghosh, A. Das, **M. Rahaman**. Development of Mango Peel Derived Activated Carbon-Nickel Nanocomposite as an Adsorbent towards Removal of Heavy Metal and Organic Dye Removal from Aqueous Solution, *Chemistry Select*, 5, 14168-14176, **2020**. DOI: 10.1002/slct.202003606
53. **M. Rahaman**, A. Das, **S. Bose**. Development of copper—iron bimetallic nanoparticle impregnated activated carbon derived from coconut husk and its efficacy as a novel adsorbent toward the removal of chromium (VI) from aqueous solution. *Water Environment Research*, 93, 1417– 1427, **2021**. DOI: 10.1002/wer.1502
54. **S. Bose**, T. Mukherjee, **M. Rahaman**. Simultaneous adsorption of manganese and fluoride from aqueous solution via bimetal impregnated activated carbon derived from waste tire: Response surface method modeling approach. *Environmental Progress & Sustainable Energy*, 40(4), 1-13, **2021**. DOI: /10.1002/ep.13600
55. S.P.S. Chundawat, L.C. Sousa, **S. Roy**, Z. Yang, S. Gupta, R. Pal, C. Zhao, S.H Liu, L. Petridis, H. Neill, S.V. Pingali. Ammonia-salt solvent promotes cellulosic biomass deconstruction under ambient pretreatment conditions to enable rapid soluble sugar production at ultra-low enzyme loadings. *Green Chemistry*, 22, 204-2018, **2020**. <https://doi.org/10.1039/C9GC03524A>(RSC, Impact Factor: 10.182)
56. S. Chatterjee, A. Palui, S. Chongdar, **S. Roy**, A. Ghosh, A. Bhaumik. Transformation of Wurtzite ZnO to a New Triclinic Nanoporous ZnO Phase via Hydrothermal Treatment with Metformin for Designing Proton Conducting Material. *Chemistry - An Asian Journal*, 16, 2261-2266, **2021**. <https://doi.org/10.1002/asia.20210060>(Wiley, Impact Factor: 4.568)
57. **S. Saha**, U.D. Hemraz, Y. Boluk. The Effects of High Pressure and High Temperature in Semidilute Aqueous Cellulose Nanocrystal Suspensions, *Biomacromolecules*, 21 (2), 1031-1035, **2020**. <https://doi.org/10.1021/acs.biomac.9b01130>
58. B. Das, D. Chakrabarty, C. Guha, **S. Bose**. Effects of Corona Treatment on Surface Properties of Co-extruded Transparent Polyethylene Film, *Polymer Engineering & Science*, 61(5), 1449-1462, **2021**. DOI: 10.1002/pen.2566

### F. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. S. Bhattacharya, A. Mazumder, D. Sen, **C. Bhattacharjee**, “Bioaugmentation technology to remove oil from oily wastewater using isolated Actinobacteria”, in book "Advances in Environmental Research", Volume 79, chapter 3, ISBN: 978-1-53618-879-0, Nova Publishers, **2020**.
2. A. Mazumder, D. Sen, **C. Bhattacharjee**, "Optimization of oily wastewater treatment process using neurofuzzy adaptive model", in book “Computational Intelligence. Theoretical Advances and Advanced Applications”, Walter De Gruyter, Germany, **2020**. DOI: 10.1515/9783110671353-011

## Annual Report 2020-2021

3. S. Bhattacharya, A. Mazumder, D. Sen, **C. Bhattacharjee**, "Bioaugmentation technology to remove oil from oily wastewater using isolated Actinobacteria", in book "Advances in Environmental Research", Nova Publishers, Volume 79, Chapter 3, ISBN: 978-1-53618-879-0, **2020**.
4. S. Bhattacharya, A. Mazumder, D. Sen, **C. Bhattacharjee**, "Bioremediation of dye using mesophilic bacteria: mechanism and parametric influence", in book "Dye Biodegradation: Mechanisms and Techniques", Springer Singapore, ISBN 978-981-16-5932-4. (in press; **2021**)
5. A. Mazumder, Z. Chowdhury, D. Sen, **C. Bhattacharjee**, "Study on Application of Novel Synthesized Silver Metallosurfactant for Membrane Cleaning", in book "Advances in Bioprocess Engineering and Technology. Lecture Notes in Bioengineering", Springer, Singapore, **2021**. DOI: 10.1007/978-981-15-7409-2\_30
6. P. Das, **C. Bhattacharjee**, "Removal of Hazardous Dyes from Waste Water in a Green and Cost-Effective Way", in book "Advances in Water Resources Management for Sustainable Use", Springer, Volume 131, chapter 11, **2021**. [https://doi.org/10.1007/978-981-33-6412-7\\_11](https://doi.org/10.1007/978-981-33-6412-7_11)
7. A. Das, R. Das, **C. Bhattacharjee**, "Isolation and Characterization of Arsenic Tolerant Bacteria from Industrial soil and analysing its metal removal potency", as lecture notes in bioengineering, in book "Advances in Bioprocess Engineering and technology", ISBN- 978-981-15-7408-5, 978-981-15-7409-2(e book). Springer, Singapore, **2020**. DOI:10.1007/978-981-15-7409-2\_23
8. A. Das, R. Das, **C. Bhattacharjee**, "Green Nano-bioremediation Process for Ultimate Water Treatment Purpose", in book "Microbial Technologies in Industrial Waste Water", Springer, Singapore ( Under process).
9. S. Banerjee, R. Das, **C. Bhattacharjee**, "Biofuel Cells for Water Desalination". In "Biofuel Cells" (eds Inamuddin, M.I. Ahamed, R. Boddula and M. Rezakazemi), **2021**. <https://doi.org/10.1002/9781119725008.ch13>
10. S. Banerjee, R. Chakraborty, R. Das, **C. Bhattacharjee**, "Overview on natural materials for oil/water separation" in book "Advances in oil-water separation: A complete guide for physical, chemical, and Biological processes", (Editors: Papita Das Suvendu Manna Jitendra Pandey), ISBN: 978032389978 [In publication]
11. S. Saha, **D. Roy**, **C. Bhattacharjee**, Reduced Graphene Oxide (RGO)-Based Nanocatalyst for Inhibition of Pathogenic Bacteria Toward Enhancement of Water Purification, in book "Advances in Bioprocess Engineering and Technology", Springer Nature, Pages 469-474, **2020**. DOI:10.1007/978-981-15-7409-2\_47
12. R Sarkhel, S Sengupta, **P Das**, **A Bhowal**, Biodegradation of Plastic Waste Using Marine Micro-Organisms. In: Ghosh S. (eds) Urban Mining and Sustainable Waste Management. Springer, Singapore, Pages 195-201, ISBN: 978-981-15-0532-4, **2020**. DOI:10.1007/978-981-15-0532-4\_20
13. S. Chatterjee, S. K. Bhattacharjee, R. Roy, **R. Chakraborty**, "Optimization of Energy-Proficient Infrared Radiated Rapid Hydrolysis of Pineapple Skin to Reducing Sugar". Advances in Bioprocess Engineering and Technology. Springer, Singapore. Pages 257-264, **2021**. [https://doi.org/10.1007/978-981-15-7409-2\\_26](https://doi.org/10.1007/978-981-15-7409-2_26)
14. D. Bose, S. Barman, **R. Chakraborty**. "Recent Trends in Valorization of Non-metallic Ingredients of Waste Printed Circuit Board: A Review". In: Ghosh S., Bhattacharya C., Satyanarayana S., Varadarajan S. (eds) Emerging Technologies for Waste Valorization and Environmental Protection. Springer, Singapore. ISBN 978-981-15-5736-1 (eBook), **2020**. <https://doi.org/10.1007/978-981-15-5736-1>
15. **R. Chakraborty**, R. Samanta. "Renewable Jet Fuel(RJF):Mitigation of Aviation-Related GHG Emissions".Reference Module in Materials Science and Materials Engineering.(ELSEVIER) Volume 3, Pages 736-742, **2020**. <https://doi.org/10.1016/B978-0-12-803581-8.11049-5>
16. **R. Chakraborty**, P. Mukhopadhyay. Use of Green Fuel Blends: A Pollution Reduction Approach".Reference Module in Materials Science and Materials Engineering (ELSEVIER), Volume 3, Pages 487-500, **2020**. <https://doi.org/10.1016/B978-0-12-803581-8.11019-7>
17. P Ganguly, R Sarkhel, **P Das**. The second and third generation biofuel technology: comparative perspectives. In: Sustainable Fuel Technologies Handbook [Accepted]. ISBN: 978-0-12-822989-7, Page: 29-46, **2020**.

## Annual Report 2020-2021

18. P. Ganguly, S. Sengupta, **P. Das**, **A. Bhowal**, Synthesis of Cellulose from Peanut Shell Waste and Its Use in Bioethanol Production. In: Ghosh S., Sen R., Chanakya H., Pariatamby A. (eds) Bioresource Utilization and Bioprocess. Springer, Singapore, Pages 81-91, ISBN: 978-981-15-1607-8, **2020**. DOI: 10.1007/978-981-15-1607-8\_10
  19. S.R. Barman, U. Roy, **P. Das**, A. Mukhopadhyay, Membrane Processes for Removal of Polyaromatic Hydrocarbons (PAHs) from Waste Water. In: "Green Chemistry and Water Remediation: Research and applications" Ed. S.K. Sharma. Elsevier. **2020**(Accepted)
  20. S. Manna, U. Roy, A. Biswas, S. Sengupta, P. Basak, **P. Das**, Review on Trends in the Removal of Pharmaceuticals and Personal Care Products (PPCPs) from Water and Wastewater, In 'Contaminants in Drinking and Wastewater Sources', Springer Transactions in Civil and Environmental Engineering, (Ed) M. Kumar et al. [Springer], Pages 225-250, **2020**. [https://doi.org/10.1007/978-981-15-4599-3\\_10](https://doi.org/10.1007/978-981-15-4599-3_10)
  21. A. Biswas, S. Manna, **P. Das**, Application of Nano materials in CO<sub>2</sub> sequestration, In 'Chemo-Biological systems for CO<sub>2</sub> utilization', (Eds) Nanda AK, et al. [CRC Press, Taylor and Francis], ISBN: 9780429317187, **2020**.
  22. S. Sengupta, A. K. Nallajaria, A. Mukherjee, **P. Das**. Commonly used polymers in separation science, Polymeric Membranes for Water Purification and Gas Separation Materials Research Foundation, 113, 9-32, **2021**.
  23. R. Sarkhel, P. Ganguly, **P. Das**. Industrial dye degradation by different nanocomposite doped material. In: Photocatalytic degradation of dyes, current trends and future perspectives, Elsevier, Netherlands, 377-403, ISBN: 978-0-12-823876-9, **2020**. DOI: 10.1016/C2020-0-00551-7
  24. S. Sengupta, U. Roy, S. Chowdhary, **P. Das**. New Bioremediation Technologies to Remove Heavy Metals and Radionuclides, M. P. Shah (ed.), Removal of Emerging Contaminants Through Microbial Processes, Springer Nature Singapore Pte Ltd, 23-45, **2021**. [https://doi.org/10.1007/978-981-15-5901-3\\_2](https://doi.org/10.1007/978-981-15-5901-3_2)
  25. S. Mukhopadhyay, A. Dhara, **R. Dutta**, "Bioindicators for monitoring of ambient air pollution and its bioremediation -A Review", in Book series Springer Nature indexed, 11. (Under process), **2020**.
  26. K. Biswas, **M. Rahaman**. Taguchi-Based Process Optimization for Improving Iron Removal from Water Using Electrocoagulation Technique. In: Ramkrishna D., Sengupta S., Dey Bandyopadhyay S., Ghosh A. (eds) Advances in Bioprocess Engineering and Technology. Lecture Notes in Bioengineering. Springer, Singapore, **2021**. [https://doi.org/10.1007/978-981-15-7409-2\\_33](https://doi.org/10.1007/978-981-15-7409-2_33)
  27. S. Mitra, **S. Bose**, **M. Rahaman**. An Environmentally Benign Green Approach for the Reduction of Graphene Oxide by Apple Extract: Spectroscopic and Thermal Interpretation. In: Ramkrishna D., Sengupta S., Dey Bandyopadhyay S., Ghosh A. (eds) Advances in Bioprocess Engineering and Technology. Lecture Notes in Bioengineering. Springer, Singapore, **2021**. [https://doi.org/10.1007/978-981-15-7409-2\\_37](https://doi.org/10.1007/978-981-15-7409-2_37)
- G. Research Articles Published in Conference Proceedings during the year (Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**
- 1) S. Banerjee, R. Das, **C. Bhattacharjee**, "Novel Porous Ternary Mg-Al-Ti Oxide Composite Nano-Adsorbents with Extremely High Arsenic Removal Capacity", in 2020 AIChE Virtual Annual Meeting, November **2020**.
  - 2) P. Das, **C. Bhattacharjee**, "Natural Adsorbent Incorporated Polymer Composite Membrane for Waste Water Treatment", International Conference on Sustainable Waste Management towards Circular Economy (IconSWM-CE 2020) held at Jadavpur University, Kolkata, India, 02-04 December, **2020**.
  - 3) S. Banerjee, A. Mondal, R. Das, **C. Bhattacharjee**, "Hydrophilicity improvement of Polysulfone Membrane using Different Weight Percentages of Polyvinylpyrrolidone and a Performance Study in Dairy Wastewater Ultrafiltration", International Conference on Sustainable Waste Management towards Circular Economy (IconSWM-CE 2020) held at Jadavpur University, Kolkata, India, 02-04 December, **2020**.
  - 4) M. Chakraborty, R. Das, **C. Bhattacharjee**, "Synthesis of Mg-Fe and Cu-Al Layered Double Hydroxide and its Adsorption Performance for Removal Of Arsenic Toxicity", International Online

## Annual Report 2020-2021

- Congress on Membranes and Membrane Assisted Processes (ICMMAP – 2021) held at Kottayam, Kerala, India, 12- 14 February, **2021**.
- 5) P. Das, **C. Bhattacharjee**, "Synthesis of Natural Adsorbent Incorporated Polymer Composite Membrane for the Removal of Hazardous Dyes from Waste Water", FETJU R&D EXPOSITION-2021 (online Webinar) under TEQIP-III R&D programme held at Jadavpur University, Kolkata, India, 26-27 February, **2021**.
  - 6) M. Chakraborty, R. Das, **C. Bhattacharjee**, "Mg-Fe and Cu-Al based layered double hydroxide derived adsorption materials for removal of arsenic toxicity from ground water", FETJU R&D EXPOSITION-2021 (online Webinar) under TEQIP-III R&D programme held at Jadavpur University, Kolkata, India, 26-27 February, **2021**.
  - 7) **S. Sardar**, A. Das, **S. Saha**, **C. Mondal**, Efficient Alkaline Peroxide Pretreatment of Sterculia foetida Fruit Shells for Production of Reducing Sugar: Effect of Process Parameters on Lignin Removal. In Proceedings of the 7th International Conference on Advances in Energy Research (pp. 1441-1451). Springer, Singapore **2020**.

### H. Patents Granted/ Published/ Filed during the year:

Name of the Inventors	Title of the Patent	National/ International	Status Granted/ Published/ Filed	Patent Number	Date of Publication
<b>S. Mandal, D. Roy, S. Roy, K. Mukhopadhyaya, N.E. Prasad</b>	Gamma Radiation Shielding Material and Its Preparation Thereof	National	Granted	347680	24.09.2020

### I. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Prof. Chiranjib Bhattacharjee</b>	Prof. S. De (IIT-KGP), Prof. Mihir Kumar Purkait(IITG), Dr. Tamal Mandal (NIT Durgapur), Dr.S. Sridhar (CSIR-IICT)	Chemical Engineering Department	DST WTI Project	5years
<b>Prof Kajari Kargupta</b>	Prof. Dipali Banerjee, Department of Physics, IEST	Department of Physics IEST, Shibpur	DST, SERB Project, Joint publication	3 years
<b>Prof. Kajari Kargupta</b>	Dr. Subhasis Roy, Chemical Engineering Department,	Chemical Engineering Department,	DST(DST/TMD(EWO) project Joint publication	3 years

**Annual Report 2020-2021**

	University of Calcutta	University of Calcutta		
<b>Prof. Rajat Chakraborty</b>	Prof. Sadhan Kumar Ghosh (Mechanical Engineering) (PI)	Chemical Engineering	Indo-Hungarian Project; DST (International Cooperation Division), India	2 years
<b>Prof. Papita Das</b>	Dr. Sujit Sen NIT Rourkella, Prof. B K Dutta, IIT Kharagpur, Prof. A B Patwardhan, ICT Mumbai	Chemical Engineering	IMPRINT II Project	3 years
<b>Prof. Papita Das</b>	Prof S Majumder, IIT Guwahati	Chemical Engineering	DST WTI Project	3 years
<b>Prof. Papita Das</b>	Dr Punarbasu Chaudhuri, CU, Dr Surajit Das, NIT Rourkella	Environmental Science, CU Dept of Life Science, NIT Rourkella	Joint Publications	-

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**A. Books/Monographs Published :**

<b>Name of the Author(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
<b>Dr. Shyamal Roy</b>	Pretreatment Methods of Lignocellulosic Biomass for Biofuel Production	CRC (Taylor & Francis)	9781003203414	2021

**B. Books/Monographs Edited :**

<b>Name of the Editor(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
<b>Prof. Chiranjib Bhattacharjee</b>	Emerging Technologies for Waste Valorization and Environmental Protection	Springer Nature	ISBN: 978-981-15-5736-1	2020
<b>Prof. Papita Das</b>	Recent Trends in Waste Water Treatment and Water Resource Management	Springer	978-981-15-0705-2	2020

**C. Seminar/Workshop/Conference/Symposium Organized:**

**(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)**

<b>Name of the Seminar/Workshop/Conference /Symposium</b>	<b>Name of the Coordinator(s)/Organizing Secretary/</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
---	---	---	--------------	-------------

### Annual Report 2020-2021

	<b>equivalent</b>			
R&D Webinar under TEQIP-III: Thematic Area: Sustainable Chemical and Biochemical Processes	Prof. Rajat Chakraborty	-	Jadavpur University	26-27 February, 2021.
One day National Workshop Recent Trends of Pollution Control Strategies for Wastewater Treatment	Prof. Papita Das	-	Kolkata (Online)	20 December, 2020

#### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
<b>Prof. Ujjaini Sarkar</b>	Advanced Energy Science and Technology, sponsored by TEQIP-III under Faculty Development Program (FDP), an online course organized by IIT, Indore, Madhya Pradesh.	IIT, Indore	7-9 December, 2020.
<b>Prof. Ujjaini Sarkar</b>	Sustainable Design of Chemical Process Plants by Using Aspen Plus and Aspen HYSYS Simulation Tools, a Six Day Online Short-Term Training Program-III, organized by Chemical Engineering Department, Vellore Institute of Technology (VIT), Tamil Nadu, sponsored by AICTE.	Vellore Institute of Technology (VIT), Tamil Nadu	21-26 September, 2020.
<b>Prof. Papita Das</b>	Orientation Training Programme [OTP] for Mentors of Higher Educational Institutions [HEIs]	NITTTR Kolkata	27 January- 04 February, 2021
<b>Dr. Shyamal Roy</b>	UGC Sponsored Faculty Induction Programme (Guru Dakshata)	Jadavpur University	21 December, 2020- 28 January, 2021

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Papita Das</b>	Invited Speaker	BSAEH, 2021	Jaipur	4 days
<b>Prof. Papita Das</b>	Delivered a lecture	Short term online course sponsored by ATAL ACADEMY, Govt of India	Durgapur	7 days

#### H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Dr. Shyamal Roy	National Workshop on Solid Waste Management	Dept. of Chemical Engg., IIT-Delhi & Delhi S&T Cluster (DRIIV)	30-31 July, 2021

## Annual Report 2020-2021

Dr. Shyamal Roy	Clean Energy Technologies	IIT-ISM Dhanbad	18 September, 2021
-----------------	---------------------------	-----------------	--------------------

### 6. Major Achievements of the Department during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Prof. Papita Das	Ranked in World Ranking of top 2% Scientist (2020) published by Stanford University which represents the top 2% the most –cited Scientist	Stanford Institute	USA

#### B. Any other Honours received by the Faculty Members:

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
Prof. Chiranjib Bhattacharjee	President of West Bengal Council for Higher Secondary Education with effect from 16 August, 2021	Govt. of West Bengal	West Bengal

#### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Somakraj Banerjee	IconSWM-CE Award – 2020 for Excellent Presentation	Jadavpur University	Kolkata

#### D. Any Other Major Achievements:

**Prof. Chiranjib Bhattacharjee** -Members of Project Review and Monitoring Committee under the Technology Information, Forecasting and Assessment Council (TIFAC-SIDBI Srijan Program) Department of Science & Technology Govt. of India.

### 8. Students Progression during the year:

#### A. Progression to Higher Studies

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
03	BE in Chemical Engineering	ME/MTech in Chemical Engineering	IIT Kanpur, IIT Roorkee, IIT Madras,
01	BE in Chemical Engineering	MBA (Master's in Business Administration (MBA IB))	Indian Institute of Foreign trade, New Delhi
01	BE in Chemical Engineering	Masters in Chemical Engineering	IIT DELHI
03	BE in Chemical Engineering	PhD	Jadavpur University, The Ohio State University



## Annual Report 2020-2021

### B. Qualifying in State/ National/ International Level Examinations

Name of the Examination	No. of students selected/ qualified
GATE	14
GRE	1
TOFEL	1
Any Other	2

### CIVIL ENGINEERING

Phone: 033-2457-2204/2208

H.O.D : Prof. Dipankar Chakraborty

Prof. Shibnath Chakrabarty(since 12.10.2020)

E-mail: hodcivil@jadavpuruniversity.in

#### 1. Vision and Mission of the Department

A. **Vision:** The department is committed to excellence in engineering education, research and public service so as to ensure sustainable prosperity and quality of life.

#### B. Mission:

1. To inculcate requisite potential within the students to groom them for becoming highly proficient Civil Engineering professionals and to render them ready for industry, further study and life-long learning.
2. To foster necessary intellectual growth of the students so that they would become productive citizens to dedicate their services towards humanity.
3. To provide a dynamic process of learning environment that emphasizes multi-faceted design, problem-solving abilities, team work, communication proficiency and leadership skills with dignity.
4. To groom the learners as highly capable pool of human resource for taking up new challenges and negotiating ventures for building up a sustainable world.
5. To nurture a diverse community of scholars who, through motivation and acquaintance of knowledge, are prepared to lead management and decision-making both inside and outside the realms of Civil Engineering.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.E. Civil Engineering	4	1 <sup>st</sup> year	149
		2 <sup>nd</sup> year	16

## Annual Report 2020-2021

B.E. Civil Engineering (Part Time)	5	1 <sup>st</sup> year	53
M.E. Civil Engineering	2	1 <sup>st</sup> year	34

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
11	7	3	19

### 4. Research Activities:

#### A. Areas of Research Activities:(Broad Areas)

- Structural Engineering
- Smart Materials
- Composite Structures
- Acoustics
- Advanced Concrete Technology
- Soil Mechanics and Foundation Engineering
- Geotechnical Earthquake Engineering
- Geo-environmental Engineering
- Ground Improvement
- Offshore Structures
- Underground Construction
- River Mechanics and Engineering
- Coastal Engineering
- Climate Change
- Traffic and Transportation Engineering
- Highway Engineering
- Reliability Design of Pavements
- Geohazards and Disaster Management
- Remote Sensing, GIS and Geostatistics
- Seepage Flow and Hydraulic Structure
- Environmental Engineering
- Solid Waste Management
- Air Pollution and Control

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
IDEAA: Indian Zero Carbon Energy Pathway	Individual	<b>Prof. Anupam Deb sarkar</b>	Environmental Defense Fund (EDF), US	1.0 year
Investigation of the Use of Waste Plastic in Light Weight Cement Mortar and Concrete as Replacement of Natural Aggregate: A Sustainable Approach for Plastic Waste Management	Individual	<b>Prof. Tumpa Hazra</b>	Science and Technology and Biotechnology Department, Govt of W.B.	3 years
Development of a Sustainable Model Green	Individual	<b>Prof. Pritam Aitch</b>	RUSA 2.0	2 years

## Annual Report 2020-2021

Engineering Solution for Indian Sundarban to Counter Natural Disasters Using Geoinformatic Technology				
---	--	--	--	--

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered during the year
4	0

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

1. Banerjee, Soumitra, Siddhartha Datta and Anupam Debsarkar. "Artificial neural network modeling for decolorization of textile dye mixture using low-cost adsorbent", *Research Journal of Chemistry and Environment*, 25.5(2020): 57-60
2. Sahoo, Satiprasad, Anirban Dhar, Anupam Debsarkar, Biswajeet Pradhan and Abdullah M. Alamri. "Future water use planning by water evaluation and planning system model." *Water Resources Management* 34.15 (2020): 4649-4664.
3. Sahoo, Satiprasad, Anirban Dhar, Anupam Debsarkar and Amlanjyoti Kar. "Can Groundwater Scenarios Be Predicted from Future Regional Climatic Input Variables?" *Water Resources Management* 34.15 (2020): 4815-4830.
4. Biswas, Satabdi, Anupam Debsarkar, and Manoranjan Pal. "Water Insufficiency, Health Hazards and Rainwater Harvesting in North 24 Parganas, West Bengal, India: Results of a Socio-economic Survey." *Arthaniti: Journal of Economic Theory and Practice* (2020): 0976747920963399.
5. Maiti, Sanjib Kumar, Tumpa Hazra, and Anupam Debsarkar. "Removal of total chromium from landfill leachate by electrocoagulation process using iron electrodes: effect of some major operational and chemical parameters." *J. Indian Chem. Soc* 97.11b (2020): 2453-2460.
6. Guha, Argha Kamal, Anirban Kundu Chowdhury, Anupam Debsarkar and Shibnath Chakrabarty. "Assessment of Noise Pollution of Kolkata Metro Railway System and Its Impact on Urban Receptors-A Case Study", *International Journal of Research in Advent Technology*, (2020): 8(11), E-ISSN: 2321-9637, Available online at [www.ijrat.org](http://www.ijrat.org)
7. Ghosh, Sudipta, Anupam Debsarkar, Amit Dutta, Subhrajyoti Bhandary and Deepak Chopra. "Delivering Arsenic-free Drinking Water-Made Practically Possible: Continuous Scale Electrochemical Arsenic Remediation Process Furnished, based on Experimental Studies and ANN Simulation." *Environment, Development and Sustainability* (2021): 1-26.
8. Bhunia, Shantanu, Ankita Bhowmik, Rambilash Mallick, Anupam Debsarkar and Joydeep Mukherjee. "Application of recycled slaughterhouse wastes as an organic fertilizer for successive cultivations of bell pepper and amaranth." *Scientia Horticulturae* 280 (2021): 109927.
9. Kumar, Ravi, Dona Chatterjee, Arghya Ghosh and Dipankar Chakravorty. "First Ply Failure Behaviour of Laminated Composite Skew Plate under Concentrated Load." *International Journal of Research in Advent Technology* 8.6 (2020): 28-33
10. Bakshi, Kaustav, and Dipankar Chakravorty. "A finite element prediction of first ply failure and delamination in composite conoidal shells using geometric nonlinearity." *Sādhanā* 45.1 (2020): 1-9.
11. Bakshi, Kaustav, and Dipankar Chakravorty. "Numerical Study on Failure of Thin Composite Conoidal Shell Roofs Considering Geometric Nonlinearity." *KSCE Journal of Civil Engineering* 24.3 (2020): 913-921.
12. Ghosh, Arghya, and Dipankar Chakravorty. "Fem Analysis of Progressive Failure for Composite Hypar Shells." *Strength of Materials* 52.4 (2020): 507-520.

## Annual Report 2020-2021

13. Das, Sreyashi, and Arup Guha Niyogi. "Free-vibration analysis of epoxy-based cross-ply laminated composite folded plates subjected to hygro-thermal loading." *Journal of The Institution of Engineers (India): Series C* 101.3 (2020): 541-557.
14. Pramanik, Subhankar, Sreyashi Das, and Arup Guha Niyogi. "Free Vibration and Buckling Analysis of Stiffened Sandwich Plates with Repeated Fold." *Journal of The Institution of Engineers (India): Series C* 102.1 (2021): 87-98.
15. Paul, Monideepa, Ramendu Bikas Sahu, and Goutam Banerjee. "A generalized consolidation model under cyclic loading." *International Journal of Geotechnical Engineering* 14.5 (2020): 497-513.
16. Paul, Monideepa, Kaustav Bakshi, and Ramendu Bikas Sahu. "An analytical model for radial consolidation prediction under cyclic loading." *Geomechanics and Engineering* 26.4 (2021): 333-343.
17. Chowdhury, Atriya, and Ramendu Bikas Sahu. "Creep potential of soft clays of Normal Kolkata Deposit." *Arabian Journal of Geosciences* 14.14 (2021): 1-18.
18. Dan, Kingshuk, and Ramendu Bikas Sahu. "Effect of arching on active earth pressure distribution against braced wall." *International Journal of Geotechnical Engineering* (2021): 1-12.
19. Roy, Narayan, Sibapriya Mukherjee, and Ramendu Bikas Sahu. "Influence of trapped soft/stiff soil layer in seismic site response analysis." *Journal of Earth System Science* 129.1 (2020): 1-19.
20. Shiuly, Amit, Narayan Roy and Ramendu Bikas Sahu. "Prediction of peak ground acceleration for Himalayan region using artificial neural network and genetic algorithm." *Arabian Journal of Geosciences* 13.5 (2020): 1-10.
21. Chowdhury, Atriya, and Ramendu Bikas Sahu. "Strain-and stress-controlled shear strength behaviour of Kolkata clays." *International Journal of Geotechnical Engineering* (2021): 1-13.
22. Goswami, B., Bhandari, G., and Goswami, S. "A Quantitative Precipitation Forecast Model using Convective-Cloud Tracking in Satellite Thermal Infrared Images and Adaptive Regression: A Case Study along East Coast of India." *Journal Modeling Earth Systems and Environment* (2020) Springer-Nature Switzerland.
23. Guha, P., Aitch, P., Bhandari, G. "Effect of Changing Vegetation Coverage and Temperature on the Monsoon Pattern of Indian Sundarban Region", *Journal of Global Resources*, 6.1 (2020): 38-42.
24. Mangal, A., and Bhandari, G. "Changing Health Condition of Working Women in the Light of Gender Inequality: An Emerging Problem Faced by the Women of Kolkata." *International Journal of Multidisciplinary Education Research*, 9.10 (2020):176-185.
25. Roy N, Desai A, Jakka R.S. "Surface Wave Dispersion in a Vertically Layered Medium for Varying Subsurface Scenarios." *International Journal of Geotechnical Earthquake Engineering*, 11.2 (2020):26-49.
26. Roy N, Jakka RS. "Mapping Surface Wave Dispersion Uncertainty in Vs Profiles to VS,30 and Site Response Analysis." *Soil dynamics and Earthquake Engineering*, 138.
27. Dutta S, Dubey RK, Mukherjee SP and Roy N. "Effect of Ground Water Level and Seismic Intensity on Failure of a Slope." *Advances in Computer Methods and Geomechanics*, Springer, (2020), ISBN No: 978-981-15-0889-9.
28. Ghosh P., Mukherjee S., Roy N and Banerjee S. "Response of Single Pile to Lateral Load with Constant Uplift." *Advances in Computer Methods and Geomechanics*, Springer, (2020), ISBN No: 978-981-15-0889-9.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Roy, A, Thakur B. and Debsarkar A. (2021) "Water Pollution and Treatment Technologies", published in the book "Environmental Management: Issues and Concerns in Developing Countries" as book chapter, page-79-106, Springer, ISBN 978-3-030-62528-3 ISBN 978-3-030-62529-0 (eBook).
2. Babul D. and Hazra T. (2021) "Quantification of Landfill Gas Emission and Energy Recovery Potential: A Comparative Assessment of Land GEM and MTM Model for Kolkata." In Spatial Modeling and Assessment of Environmental Contaminants, pp. 55-67. Springer. ISBN 978-3-030-63421-6 and 978-3-030-63422-3 (eBook)

## Annual Report 2020-2021

3. Guha P., Aitch P. and Bhandari G. (2020) Effect of Changing Vegetation Coverage and Meteorological Parameters on the Hazard Characteristics of Indian Sundarban Region and Its Impact There On. In: Pal I., von Meding J., Shrestha S., Ahmed I., Gajendran T. (eds) An Interdisciplinary Approach for Disaster Resilience and Sustainability. MRDRRE 2017. Disaster Risk Reduction (Methods, Approaches and Practices). Springer, Singapore. ISBN: 978-981-32-9527-8
4. Chaudhuri P., Aitch P. and Dutta A. (2020) Identification of Arsenic Hazard Locations and Impact on Children—A Case Study on Baruipur Block, South 24 Parganas, West Bengal. In: Pal I., von Meding J., Shrestha S., Ahmed I., Gajendran T. (eds) An Interdisciplinary Approach for Disaster Resilience and Sustainability. MRDRRE 2017. Disaster Risk Reduction (Methods, Approaches and Practices). Springer, Singapore. ISBN: 978-981-32-9527-8
5. Mondal K.C., Saha S., Aitch P. and Bhandari G. (2020) Application of Remote Sensing and GIS in Flood Vulnerability Assessment—A Case Study of Lower Ajay Basin, India. In: Pal I., von Meding J., Shrestha S., Ahmed I., Gajendran T. (eds) An Interdisciplinary Approach for Disaster Resilience and Sustainability. MRDRRE 2017. Disaster Risk Reduction (Methods, Approaches and Practices). Springer, Singapore. ISBN: 978-981-32-9527-8
6. Kar S., Bhandari G., Ghosh I., Ghosh A. and Aitch P. (2020) The Study of the Impact of Wastewater from Outfall in River Ganga, West Bengal on the Growth and Morphological Parameters of Spinacia Oleracea L.. In: Pal I., von Meding J., Shrestha S., Ahmed I., Gajendran T. (eds) An Interdisciplinary Approach for Disaster Resilience and Sustainability. MRDRRE 2017. Disaster Risk Reduction (Methods, Approaches and Practices). Springer, Singapore. ISBN: 978-981-32-9527-8
7. Mitra Sourav, Pal Saurav and Aitch Pritam (2020). Reliability analysis on fatigue and rutting failures of flexible pavement with the variation of surrounding atmospheric condition and mix design of bitumen, published online at <https://www.springerprofessional.de/reliability-analysis-on-fatigue-and-rutting-failures-of-flexible/18373666>

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Satabdi Biswas, Anupam Debsarkar & Shyamaprasad Sinharay “Perception Study Towards Rainwater Harvesting in Qualitative Water Stressed Areas”, in the Webinar entitled R&D Exposition-2021, organized under the auspices of TEQIP-III of Jadavpur University, 27 February, 2021.
2. Shantanu Bhunia, Ankita Bhowmik, Rambilash Mallick, Anupam Debsarkar & Joydeep Mukherjee “Recycling of Slaughterhouse Waste in Organic Agriculture: An Initiative to Protect Environment and Economy”, in the Webinar entitled R&D Exposition-2021, organized under the auspices of TEQIP-III of Jadavpur University, 27 February, 2021.
3. Soumitra Banerjee, Anupam Debsarkar and Siddhartha Datta “Adsorption Potential of Selected Low-Cost Adsorbents for Removal of Two Basic Dyes (Methylene Blue and Malachite Green) from Binary System: A Comparative Study”, in the Webinar entitled R&D Exposition-2021, organized under the auspices of TEQIP-III of Jadavpur University, 27 February, 2021.
4. Ravi Kumar, Dona Chatterjee, Arghya Ghosh and Dipankar Chakravorty. First ply failure characteristics of laminated composite skew plate under concentrated load Structural Engineering Convention (SEC-2020) (12th International Conference). MNIT Jaipur 17-19 December, 2020
5. Dona Chatterjee, Arghya Ghosh, Dipankar Chakravorty. Effect of stacking sequence variation on first ply failure load of laminated composite skew plate. Structural Engineering Convention (SEC-2020) (12th International Conference), MNIT Jaipur, 17-19 December, 2020
6. Sanjoy Das Neogi, Amit Karmakar and Dipankar Chakravorty. A study on impact induced stress due to low velocity impact on laminated composite skewed hyper shell roof. Structural Engineering Convention (SEC-2020) (12th International Conference) MNIT Jaipur, 17-19 Dec 2020
7. Chatterjee, Dona, Arghya Ghosh and Dipankar Chakravorty. First ply failure behaviour of corner point supported laminated composite skew plate. 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics 2020. IIT, Kharagpur, 4-6 September, 2020.
8. Chatterjee, Dona, Arghya Ghosh, and Dipankar Chakravorty. "Nonlinear first ply failure study of laminated composite skew plates." Materials Today: Proceedings 45 (2021): 4925-4930.

## Annual Report 2020-2021

9. Chatterjee, Dona, Arghya Ghosh and Dipankar Chakravorty. Nonlinear First Ply Failure Study of Laminated Composite Skew Plates, In 2nd International Conference on Aspects of Materials Science and Engineering. Panjab University, Chandigarh, India 05-06 March 2021.
10. Suman Pandey and Dipankar Chakravorty. Response of Delamination on Static Behavior of Simply Supported Composite Conoidal Shell Roofs. In National Conference on Recent Advances in Structural Engineering - NCRASE 2020. 21-22 August 2020, NIT-Jamshedpur.
11. Sourish Dandapat and Sreyashi Das, Free Vibration analysis of Functionally Graded Plate with and without cutout, Proceedings of 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020), 4 – 6 September 2020, ISBN 978-93-5416-440-8 ISBN 978-93-5416-440-8 (eBook).
12. Debalina Basu (Dutta), Sreyashi Das, Vibration Characteristics of Functionally Graded Plate for Different Edge Constraint, Proceedings of 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020), 4– 6 September, 2020, ISBN 978-93-5416-440-8 ISBN 978-93-5416-440-8 (eBook).
13. Sreyashi Das, Vibration Characteristics of Laminated Composite Folded Plates, Proceedings of 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020), 4 – 6 September, 2020, ISBN 978-93-5416-440-8 ISBN 978-93-5416-440-8 (eBook).
14. Ankita Baksi, Jayita Guha Niyogi, Arup Guha Niyogi, Addressing Informal Public Transport Vehicle Problem in Kolkata, Recent Advances in Traffic Engineering, Select Proceedings of RATE 2018, Springer Nature Singapore Pte Ltd. 2020, 303-322. ISSN 2366-2557 ISBN 978-981-15-3741-7
15. Subhankar Pramanik, Sreyashi Das, A. Guha Niyogi, Buckling Analysis of Laminated Composite Rectangular Cavity with Cutout, Proceedings of 1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020), 4– 6 September 2020, ISBN 978-93-5416-440-8
16. Sarkar, Chiranjib, and Sibapriya Mukherjee. Seismic Behavior of Tunnel Structure Under Varying Surrounding Soil, Water Table, and Overburden Condition. In Recent Advances in Earthquake Engineering, pp. 259-270. Springer, Singapore, 2021. ISBN: 978-981-16-4616-4.
17. Sarkar, Chiranjib, and Sibapriya Mukherjee. Simple and rapid method for Designing of Tunnel Structure in Rock. In IEI - Annual Technical Volumn. Delhi. 2020. ISBN: 978-81-950662-5-4.
18. Sarkar, Chiranjib, and Sibapriya Mukherjee. Effect of overburden and soil parameter on tunnel induced ground settlement. In IGC-2020. Vizag. 2020. ISBN: 978-981-16-5600-2
19. Sarkar, Chiranjib, and Sibapriya Mukherjee. Seismic Effect on Underground Box Structure for Metro and Subways with Varying Soil Parameters. In Proceedings of 7th ICORAGEE 2021, Bangalore. ISBN: 978-981-16-5672-9
20. Mallick, Monirul, Kalyan Kumar Mandal, and Ramendu Bikas Sahu. Analysis of Laterally Loaded Single Pile in Cohesionless Soil Considering Nonlinear Soil-Structure Interaction Effects. In IGC-2020. Vizag. ISBN: 978-981-16-5604-0
21. Mallick, Monirul, Kalyan Kumar Mandal, and Ramendu Bikas Sahu. A Case study of Liquefaction-induced Damage to a Port Building Supported on Pile Foundation. In IGC-2020. Vizag. ISBN: 978-981-16-5604-0
22. Rotaru, A., and Bhandari, G. The Impact of Environmental Degradation: Atmospheric and Geological Issues in Built Areas, Springer Series in Geomechanics and Geoengineering, (2021): 35-46
23. Goswami, S., Goswami, B., and Bhandari, G. Hexalevel Grayscale Imaging and K-Means Clustering to Identify Cloud Types in Satellite Visible Range Images, Proceedings of the International Conference on Computational Intelligence and Computing, ICCIC 2020, ISBN: 978-981-16-3368-3.
24. Guha, P., Aitch, P., and Bhandari, G. Hazard Stress and Increasing Socio-Economic Vulnerability in Indian Sundarban Region, Second International Symposium on Disaster Resilience and Sustainable Development 2021, Asian Institute of Technology, Thailand.
25. Debabrata M., Roy N. and Sahu R.B. Behaviour of low height Embankment on Soft Clay under Seismic, 7th International Conference on Recent Advances in Geotechnical Earthquake Engineering - 2020 (ICRAGEE 2020), IISC Bangalore, India.

**Annual Report 2020-2021**

**H. Research Collaboration with other Departments/Institutes/Industries:**

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Dr. Sibapriya Mukherjee</b>	Dr. Subhadeep Banerjee	Department of Civil Engineering, IIT MADRAS	Ph.D Research Guidance	Continuing since 2017
<b>Dr. Sibapriya Mukherjee</b>	Dr. Dipanjan Basu	Department of Civil and Environmental Engineering, University of Waterloo, Canada	Ph.D Research Guidance	2016-2020

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**A. Books/Monographs Published :**

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Prof. Somnath Ghosh</b>	Wind and Earthquake Resistant Reinforced Concrete Buildings	CRC press	ISBN:9780367537821, 0367537826	2021

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Composite Rebar for RCC and Problem of Conservation on Monuments in Coastal Region - Lord Jagannath Temple, Puri	<b>Prof Saroj Mandal</b>		Online	9.11.20
Concrete processing - challenges and preparedness	<b>Prof Saroj Mandal</b>		Online	3.10.20
Concrete day celebration	<b>Prof Saroj Mandal</b>		Online	7.9.20
Breakwater for Marine Structures - Design and Construction	<b>Prof Saroj Mandal</b>		Online	29.8.20
Emerging nondestructive testing and eco-friendly materials- durable solution for nation's infrastructure	<b>Prof Saroj Mandal</b>		Online	13.8.20
Innovations for sustainable roof waterproofing and	<b>Prof Saroj Mandal</b>		Online	8.8.20

### Annual Report 2020-2021

restoration for concrete and metal substrates				
Recent advances in concrete and sustainable materials	<b>Prof Saroj Mandal</b>		Online	29.7.20
Externally bonded CFRP technology for rehabilitation of structure	<b>Prof Saroj Mandal</b>		Online	20.7.20
Liquefaction analysis and evaluation of post-earthquake settlement in the light of proposed Indian code.	<b>Prof Saroj Mandal</b>		Online	11.7.20
Disaster management in Amphan - A Railway perspective	<b>Prof Saroj Mandal</b>		Online	4.7.20
Self-compacting grout for preplaced aggregate concrete	<b>Prof Saroj Mandal</b>		Online	1.7.20
Concrete mix design based on latest IS codes	<b>Prof Saroj Mandal</b>		Online	23.6.20
Disaster mitigation engineering against earthquake and cyclone in the context of recent Amphan	<b>Prof Saroj Mandal</b>		Online	19.6.20
Exploring the opportunity on new generation composite pavements with cement concrete	<b>Prof Saroj Mandal</b>		Online	11.6.20

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof Anupam Debsarkar</b>	Delivered invited lecture on “Waste Recycling & its Application in Rural Slaughterhouses-A Case Study”	‘Recent Trends of Pollution Control Strategies for Wastewater Treatment (RTPCSWT-2020)’	Department of Chemical Engineering, Jadavpur University	20-21 December, 2020
<b>Prof Anupam Debsarkar</b>	Delivered invited lecture on “Hazardous Waste Management- From Indian Perspective”	"Creating Wealth from Waste - CWW-2021”	N.I.T Durgapur	19-20 January, 2021
<b>Prof Saroj Mandal</b>	Panelist	Webinar on Liquefaction analysis and	online	11.7.20



**Annual Report 2020-2021**

		evaluation of post-earthquake settlement in the light of proposed Indian code.		
<b>Prof Saroj Mandal</b>	Chief guest	Webinar on Innovations for sustainable roof waterproofing and restoration for concrete and metal substrates	Online	8.8.20
<b>Prof Saroj Mandal</b>	Panelist	Webinar on Concrete mix design based on latest IS codes	Online	23.6.20
<b>Prof Sibapriya Mukherjee</b>	Delivered Theme Lecture on Soil behaviour and characterization: A study on improvement of CBR characteristics of soil subgrade	Indian Geotechnical Conference 2020	Visakhapatnam	17-19 December, 2020
<b>Prof Pritam Aitch</b>	Invited Lecture	WEBINAR ON "Amphan-from Coastal to Urban Bengal" Focusing on "Disaster Associated with Urban Forestry"	Kolkata	1 Day
<b>Prof Somnath Ghosh</b>	Theme Speaker	Earthquake resistant structures	IIT - Indore - TEQIP	2 Days
<b>Prof Somnath Ghosh</b>	Theme Speaker	High Performance concrete	GMIT - Kolkata	1 Day
<b>Prof Somnath Ghosh</b>	Theme Speaker	High Performance concrete for 21 st century	IIT Indore – TEQIP	2 Days
<b>Prof Somnath Ghosh</b>	Theme Speaker	Alkali Activated composite	SRM group of Institutes - Chennai	1 Day
<b>Prof. Arup Guha Niyogi</b>	Resource Person	Training Course on Earthquake & Landslide Risk	Online	3 Days

**Annual Report 2020-2021**

		Mitigation & Management		
<b>Prof. Gupinath Bhandari</b>	Resource Person	FDP Course	NIT Calicut	3 Hours
<b>Prof. Gupinath Bhandari</b>	Resource Person	Training of Nirman Sahayaks	GKCIET, Malda	3 Hours
<b>Prof. Gupinath Bhandari</b>	Resource Person	Training of Nirman Sahayaks	NIT Agartara	3 Hours

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Satabdi Biswas, Anupam Debsarkar &amp; Shyamaprasad Sinharay</b>	“Perception Study Towards Rainwater Harvesting in Qualitative Water Stressed Areas”	R&D Exposition-2021 under TEQIP-III	Jadavpur University	26-28 February
<b>Shantanu Bhunia, Ankita Bhowmik, Rambilash Mallick, Anupam Debsarkar &amp; Joydeep Mukherjee</b>	“Recycling of Slaughterhouse Waste in Organic Agriculture: An Initiative to Protect Environment and Economy”,	R&D Exposition-2021 under TEQIP-III	Jadavpur University	26-28 February, 2021
<b>Soumitra Banerjee, Anupam Debsarkar and Siddhartha Datta</b>	“Adsorption Potential of Selected Low Cost Adsorbents for Removal of Two Basic Dyes (Methylene Blue and Malachite Green) from Binary System: A Comparative Study”,	R&D Exposition-2021 under TEQIP-III	Jadavpur University	26-28 February, 2021
<b>Ria Ghosh</b>	Impact Assessment of Open Dumping and Garbage Farming on Human Health and Adjacent Ecosystem: A Case Study.	10th International Conference on Solid Waste Management & Exhibition on Municipal Services, Clean Technology & Machineries	Online Platform	02-04 December, 2020

**Annual Report 2020-2021**

<b>Nabanita Ghosh</b>	Biomining: A Sustainable Solution for Reclamation of Open Landfills in India.	10th International Conference on Solid Waste Management & Exhibition on Municipal Services, Clean Technology & Machineries	Online Platform	02-04 December, 2020
<b>Dr. Sreyashi Das</b>	Vibration Characteristics of Laminated Composite Folded Plates	1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020)	IIT Kharagpur	4 – 6 September, 2020
<b>Sourish Dandapat (PG student)</b>	Free Vibration analysis of Functionally Graded Plate with and without cutout	1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020)	IIT Kharagpur	4 – 6 September, 2020
<b>Subhankar Pramanik (Research Scholar)</b>	Buckling Analysis of Laminated Composite Rectangular Cavity with Cutout	1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020)	IIT Kharagpur	4 – 6 September, 2020
<b>Debalina Basu (Dutta) (Research Scholar)</b>	Vibration Characteristics of Functionally Graded Plate for Different Edge Constraint	1st Online International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM-2020)	IIT Kharagpur	4 – 6 September, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Tumpa Hazra</b>	Effective and Efficient Online Teaching in the Age of Corona, A Hands On Workshop	Indian Institute of Technology, Bombay in Online Platform	21-23 May, 2020
<b>Tumpa Hazra</b>	Recent Advances in Environmental Biotechnology	Indian Institute of Technology Kharagpur in Online Platform	5-9 October, 2020

## Annual Report 2020-2021

<b>Tumpa Hazra</b>	Advancements in Civil Engineering (with emphasis on Water resources, Environmental engineering and climate change)	Indian Institute of Technology Indore in Online Platform	2-7 November, 2020
--------------------	--	--	--------------------

**7. Extension Activities of the Department during the year:**

**A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

Prof. Sibapriya Mukherjee is acting as a member of BoS of Narula Institute of Technology and Heritage Institute of Technology.

**B. Activities for the Society**

Prof. Sibapriya Mukherjee is attached with different consultancy jobs related to geotechnical investigation for several projects leading to benefit of the society.

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
5	BCE	ME/ MTech	IIT Kanpur
1	BCE	MBA	IIM Indore
4	BCE	ME/ MTech	Jadavpur University
1	BCE	ME/ MTech	NIT Durgapur
1	BCE	MSc	IHE Delft, Delft, Netherlands
1	BCE	ME/ MTech	IIT Bhubaneswar
1	BCE	ME/ MTech	NIT Rourkela
1	BCE	ME/ MTech	IIT Bombay

**B. Qualifying in State/ National/ International Level Examinations**

Name of the Examination	No. of students selected/ qualified
GATE	33
CAT	3
GRE	1
State Government Services	1
NRL (GET - Civil)	1

## Annual Report 2020-2021

### COMPUTER SCIENCE & ENGINEERING

Phone: 033-2457-2574/2214

H.O.D : Prof. Mahantapas Kundu

Prof. Anupam Sinha (Since 3.8.2020)

E-mail:hodcse@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

To nurture young minds by providing right ambience, quality education and research motivation for excellence in the areas of Computer Science & Engineering to contribute towards a better world.

##### B. Mission:

To educate students in the areas of Computer Science & Engineering and allied fields by providing best practices of teaching-learning process for careers in industries/higher education/research.

M1: To educate students in the areas of Computer Science & Engineering at par global standards.

M2: To take up technological challenges of the State, Nation and beyond for the betterment of society.

M3: To motivate students towards collaborative activities, quality research and innovation.

M4: To promote self-reliance among students to meet emerging challenges in industry, academia and entrepreneurship ventures.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BCSE	4	1 <sup>st</sup> year	82
		2 <sup>nd</sup> year	96
		3 <sup>rd</sup> year	63
		4 <sup>th</sup> year	62
MCSE	2	1st year	38
		2nd year	33
MTCT	3	1st year	32
		2nd year	28
		3rd year	25
MCA	3	1st year	47
		2nd year	44
		3rd year	38

## Annual Report 2020-2021

### 3. Faculty Members in the Department:

Professor	Associate Professor	Assistant Professor	No. of Faculty Members with Ph.D
20	3	4	27

### 4. Research Activities:

#### A. Areas of Research Activities:(Broad Areas)

Machine Learning, Artificial Intelligence, Pattern Recognition, Computational Intelligence, Bioinformatics, Video and Image Processing, Face Recognition, Medical Image Analysis, Cloud Computing, Internet of Things, Soft computing, Data Mining, Wireless and Mobile Computing, Wireless Sensor Networks, Quantum Computing, Natural Language and Speech Processing, Emotion and Sentiment Analysis, Security, Distributed Computing, Social Network Analysis, High Performance Computing.

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Development of some analytical tools for analysis of large-scale protein-protein interaction networks	Individual	<b>Subhadip Basu</b>	DBT	2017-2021
Development of High speed MANET for Intelligent Collaboration	Individual	<b>Sarmistha Neogy</b>	DRDO	2019-2021
Multi-lingual Text Analytics for Camera-based Handheld Devices.	Individual	<b>Ram Sarkar</b>	SERB, DST	2017-2020
Computational Social Science for Crisis and Disaster Management	Individual	<b>Ujjwal Maulik</b>	SERB, DST	2020-2023.
Sevak – An Intelligent Indian Language Chatbot	Individual	<b>Dipankar Das</b>	SERB, DST	2019-2022
Claim Detection and Verification using Deep NLP : an Indian Prospective	Individual	<b>Dipankar Das</b>	DRDO	2021-2024
Participatory and real time pollution monitoring system for smart city	Individual	<b>Sarbani Roy</b>	DST, WB	2018-2021
Developing Framework for Indoor Location Based Services with Seamless Indoor Outdoor Navigation by expanding Spatial Data Infrastructure	Individual	<b>Chandreyee Chowdhury</b>	DST, NGP	2020-2022
Identifying Important Factors Impacting the	Individual	<b>Susmita Ghosh</b>	DST SERB	2020-2021

### Annual Report 2020-2021

Spread and Mortality Rate of COVID-19 Using Biclustering Approach			under MATRICS Special Call	
A Multi Modal Approach to Medical Diagnosis Embedding Deep and Transfer Learning	Individual	<b>Susmita Ghosh</b>	DST (ASEAN-India)	2020-2022
Development of object detection techniques from degraded complex video sequences due to dynamic variations of scenes by different atmospheric conditions for security and surveillance	Individual	<b>Debotosh Bhattacharjee</b>	DRDO	2019-2021
Development of a computer-assisted diagnosis system for segmenting and detecting abnormalities and disease diagnosis	Individual	<b>Debotosh Bhattacharjee</b>	DST	2019-2021
Indian Social Media Sensor: an Indian Social Media Text Mining System for Topic Detection, Topic Sentiment Analysis and Opinion Summarization	Individual	<b>Kamal Sarkar</b>	SERB under DST (Govt. Of India)	2018-2021
Automatic Generation of Cytological Images to Augment Data for Diagnosis of Ductal Carcinoma Using Deep Learning	Individual	<b>Nibaran Das</b>	SERB under DST (Govt. Of India)	2019-2022

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
Awarded: 12	Submitted: 11 Registered and ongoing: 55

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

- Grzegorz Bokota, Jacek Sroka, **Subhadip Basu**, Nirmal Das, Pawel Trzaskoma, Yana Yushkevich, Agnieszka Grabowska, Adriana Magalska, Dariusz Plewczynski, "PartSeg: a tool for quantitative feature extraction from 3D microscopy images for dummies", BMC bioinformatics 22 (1), 1-15, 2021.
- Indra Narayan Dutta, Neelotpal Chakraborty, Ayatullah Faruk Mollah, **Subhadip Basu**, **Ram Sarkar**, "BOB: a bi-level overlapped binning procedure for scene word binarization", Multimedia Tools and Applications 80 (5), 7609-7635, 2021.

## Annual Report 2020-2021

3. S. Malakar, **R. Sarkar, Subhadip Basu, Mahantapas Kundu, M. Nasipuri**, “An image database of handwritten Bangla words with automatic benchmarking facilities for character segmentation algorithms”, *Neural Comput. Appl.*, 33, pages449–468(2021).
4. Neelotpal Chakraborty, Soumyadeep Kundu, Sayantan Paul, Ayatullah Faruk Mollah, **Subhadip Basu, Ram Sarkar**, “Language identification from multi-lingual scene text images: a CNN based classifier ensemble approach”, *Journal of Ambient Intelligence and Humanized Computing*, 12, 7997-8008 (2021)
5. Shaswata Saha, Neelotpal Chakraborty, Soumyadeep Kundu, Sayantan Paul, Ayatullah Faruk Mollah, **Subhadip Basu, Ram Sarkar**, “Multi-lingual scene text detection and language identification”, *Pattern Recognition Letters* 138, 16-22, 2020.
6. **Subhadip Basu, U Maulik**, U Pal, “Editorial: Special Issue on Deep Learning for Video Text Analysis”, *Pattern Recognition Letters* 138, 305-307, 2020.
7. Urban, Paulina, Vahid Rezaei Tabar, Michał Denkiewicz, Grzegorz Bokota, Nirmal Das, **Subhadip Basu**, and Dariusz Plewczynski. "The Mixture of Autoregressive Hidden Markov Models of Morphology for Dendritic Spines during Activation Process." *Journal of Computational Biology* (2020), 27 (9), 1471-1485.
8. A.K. Halder, S.S. Bandyopadhyay, P. Chatterjee, **M. Nasipuri**, D. Plewczynski, **S. Basu**, “JUPPI: A multi-level feature based method for PPI prediction and a refined strategy for performance assessment,” *IEEE/ACM Transactions on Computational Biology & Bioinformatics*, *in press* (2020). <https://doi.org/10.1109/tcbb.2020.3004970>.
9. Anup Kumar Halder, Michał Denkiewicz, Kaustav Sengupta, **Subhadip Basu**, Dariusz Plewczynski, “Aggregated Network Centrality Shows Non-Random Structure of Genomic and Proteomic Networks”. *Methods*, Elsevier, Volumes 181–182, Pages 5-14 October, 2020.
10. A. Giri, S. Dutta, & S. Neogy, “Information-theoretic approach for secure localization against sybil attack in wireless sensor network”, *Journal of Ambient Intelligence and Humanized Computing*, 12, pages 9491-9497 (2021), Online published 23 November, 2020
11. Madhvi Saxena, Ankit Joshi, Subrata Dutta, Kailash Chandra Mishra, Arindam Giri and Sarmistha Neogy, “Comparison of different Multi-hop algorithms to improve the efficiency of LEACH protocol”, *Wireless Personal Communications*, 118, pages 2505-2518 (2021), Published online 13 February, 2021
12. Safikureshi Mondal, Anwesha Basu, Nandini Mukherjee (2020), Building a trust-based doctor recommendation system on top of multilayer graph database. *Journal of Biomedical Informatics*, 110: 103549.
13. Anindita Sarkar Mondal, Sarmistha Neogy, Nandini Mukherjee, Samiran Chattopadhyay (2020), Performance analysis of an efficient object-based schema oriented data storage system handling health data. *Innov. Syst. Softw. Eng.* 16(1): 63-77.
14. Atrayee Gupta and Nandini Mukherjee, Handling uncertainty in eHealth sensors using fuzzy system modeling, *Health and Technology Journal*, volume 10, number 6, pages 1533–1554, 2020, Springer Berlin Heidelberg
15. Sunanda Bose and Nandini Mukherjee, SenSchedule: Scheduling Heterogeneous Periodic Sensing Resources with Non Uniform Performance in IoT, *IEEE Transactions on Services Computing*, 2020. (Early Access Article)
16. Atrayee Gupta, Ankita Nag and Nandini Mukherjee, Handling Errors in eHealth Sensors using Interval Mapping and Fuzzy Modeling, *IEEE Sensors Journal*, 2021 (Early Access Article)
17. Sourav Mandal and Sudip Kumar Naskar. Classifying and Solving Arithmetic Math Word Problems – an Intelligent Math Solver. In *IEEE Transactions on Learning Technologies*, IEEE, Volume 14, Issue 1, pp. 28–41, 08 February, 2021
18. Alok Ranjan Pal, Diganta Saha, Niladri Sekhar Dash, Sudip Kumar Naskar. *In Search of a Suitable Method for Disambiguation of Word Senses in Bengali*. In *International Journal of Speech Technology*, Springer, 01 February 2021
19. Shibaprasad Sen, Ankan Bhattacharyya, Mridul Mitra, Kaushik Roy, Sudip Kumar Naskar, and Ram Sarkar. *Online Bangla Handwritten Word Recognition Using HMM and Language Model*. *Neural Computing and Applications*, Springer, October 2020, Vol. 32, No. 14, pp. 9939–9951.



## Annual Report 2020-2021

20. Sourav Mandal, Sk Arif Ahmed and Sudip Kumar Naskar. *Solving Arithmetic Word Problems: a Deep Learning Based Approach*. In Journal of Intelligent & Fuzzy Systems (JIFS), IOS Press, June 2020, Vol. 39, No. 2, pp. 2521–2531.
21. C. Dey, R. Bose, K. K. Ghosh, S. Malakar, **R. Sarkar**, “LAGOA: Learning Automata based Grasshopper Optimization Algorithm for Feature Selection in Disease Datasets”, *Journal of Ambient Intelligence and Humanized Computing*, Springer, 2021, doi.org/10.1007/s12652-021-03155-3
22. S. Shaw, S. Ahmed, S. Malakar, L. Garcia-Hernandez, A. Abraham, **R. Sarkar**, “Hybridization of Ring Theory-based Evolutionary Algorithm and Particle Swarm Optimization to solve Class Imbalance Problem”, *Complex & Intelligent Systems*, Springer, Vol. 7, pp. 2069-2091, 2021, doi.org/10.1007/s40747-021-00314-z
23. D. Banerjee, P. Bhowal, S. Malakar, **R. Sarkar**, “A Two-tier Ensemble Approach for Writer Dependent Online Signature Verification”, *Journal of Ambient Intelligence and Humanized Computing*, Springer, 2021, doi.org/10.1007/s12652-020-02872-5
24. S. K. Ghosal, S. Mukhopadhyay, S. Hossain, **R. Sarkar**, “Exploiting Laguerre Transform in Image Steganography”, *Computers and Electrical Engineering, Elsevier*, Vol. 89, 2021, 10.1016/j.compeleceng.2020.106964
25. S. Majumder, S. Ghosh, S. Malakar, **R. Sarkar**, **M. Nasipuri**, “A voting-based technique for word spotting in handwritten document images”, *Multimedia Tools and Applications, Springer*, Vol. 80, pp. 12411-12434, 2021, 10.1007/s11042-020-10363-0
26. S. Mukhopadhyay, S. Hossain, S. K. Ghosal, **R. Sarkar**, “Secured Image Steganography based on Catalan Transform”, *Multimedia Tools and Applications, Springer*, Vol. 80, pp. 14495-14520, 2021, 10.1007/s11042-020-10424-4
27. S. S. Sarkar, K. H. Sheikh, A. Mahanty, K. Mali, A. Ghosh, **R. Sarkar**, “A Harmony Search Based Wrapper-Filter Feature Selection Approach for Microstructural Image Classification”, *Integrating Materials and Manufacturing Innovation, Springer*, Vol. 10, pp. 1-19, 2021, 0.1007/s40192-020-00197-x
28. A. Basu, R. Mondal, S. Bhowmik, **R. Sarkar**, “U-Net vs Pix2Pix: A Comparative Study on Degraded Document Image Binarization”, *Journal of Electronic Imaging, SPIE*, Vol. 29, Issue 6, 2020, 10.1117/1.JEI.29.6.063019
29. B. Ray, A. Garain, **R. Sarkar**, “An Ensemble based Hotel Recommender System using Sentiment Analysis and Aspect Categorization of Hotel Reviews”, *Applied Soft Computing, Elsevier*, Vol. 98, 2021, 10.1016/j.asoc.2020.106935
30. K. K. Ghosh, R. Guha, S. K. Bera, N. Kumar, **R. Sarkar**, “S-Shaped versus V-Shaped Transfer Functions for Binary Manta Ray Foraging Optimization in Feature Selection Problem”, *Neural Computing and Applications, Springer*, Vol. 33, pp. 11027-11041, 2021, doi.org/10.1007/s00521-020-05560-9
31. Shisna Sanyal, Anindita Desarkar, Uttam Kumar Das, **Chitrita Chaudhuri**. “Identifying Handwritten Signature Images using Automatically Improved Feature Values”, *International Journal of Rough Sets and Data Analysis (IJRSDA)*. January 2021. DOI:10.4018/IJRSDA.20210101.oa1.
32. S. Sen, A. Dey and U. Maulik, “Studying the Effect of Alpha-Synuclein and Parkinson’s Disease Linked Mutants on Inter Pathway Connectivities”, *Scientific Reports (Nature Publishing Group)* 11, Article number: 16365, 2021
33. S. Sen, A. Dey, S. Bandyopadhyay, V. N. Uversky and U. Maulik, “Understanding Structural Malleability of the SARS-CoV-2 Proteins and relation to the Comorbidities”, *Briefings in Bioinformatics (Oxford Academy)*, 2021, DOI:10.1093/bib/bbab232
34. K. Gupta, M. Lalit, A. Ghosh, U. Maulik, G. Ahuja, S. Bandyopadhyay and D. Sengupta, “Modeling expression ranks for noise-tolerant differential expression analysis of scRNA-Seq data”, *Genome Research* 2021, doi:10.1101/gr.267070.120
35. A. Dey, S. Sen and U. Maulik, “Unveiling SARS-COV-2 associated Organ Specific Cell Types and Cell Specific Pathway Cascade”, *Briefings in Bioinformatics (Oxford Academy)*, 22(2), pp. 914-923, 2021.
36. S. Kundu, U. Maulik and A. Mukhopadhyay, “A Game Theory-based Approach to Fuzzy Clustering for Pixel Classification in Remote Sensing Imagery”, *Soft Computing*, 25(7): 5121-5129, 2021.

## Annual Report 2020-2021

37. K Mishra, S Basu and U Maulik, "A Dilated Convolutional Based Model for Time Series Forecasting", *SN Computer Science*, vol. 2 (2), pp. 1-11, 2021.
38. A. Dey, S. Sen, V. N. Uversky and U. Maulik, "Structural Facets of POU2F1 in Light of the Functional Annotations and Sequence-Structure Patterns", *Journal of Biomolecular Structure and Dynamics*, pp.1-13, 2020.
39. R. Das, S. Sen and U. Maulik, "A Survey on Fuzzy Deep Neural Networks", *ACM Computing Survey*, 53(3), 54:1-54:25, 2020.
40. J. Sarkar, I. Saha, S. Chakraborty and U. Maulik, "Machine Learning Integrated Credibilistic Semi Supervised Clustering for Categorical Data", *Applied Soft Computing*, 86 (article number 105871), (doi.org/10.1016/j.asoc.2019.105871), 2020.
41. Jnanendra Prasad Sarkar, Indrajit Saha, **Anasua Sarkar**, Ujjwal Maulik, Machine learning integrated ensemble of feature selection methods followed by survival analysis for predicting breast cancer subtype specific miRNA biomarkers, *Computers in Biology and Medicine*, Volume 131, 2021, 104244, ISSN 0010-4825, <https://doi.org/10.1016/j.compbiomed.2021.104244>.
42. Basu, A., **Sarkar, Anasua.** & Maulik, U. Molecular docking study of potential phytochemicals and their effects on the complex of SARS-CoV2 spike protein and human ACE2. *Sci Rep* 10, 17699 (2020). <https://doi.org/10.1038/s41598-020-74715-4>.
43. Mahata, Kalyan, Das, Rajib, Das, Subhasish and **Sarkar, Anasua.** "Land Use Land Cover map segmentation using Remote Sensing: A Case study of Ajoy river watershed, India", *Journal of Intelligent Systems*, vol. 30, no. 1, 2021, pp. 273-286. <https://doi.org/10.1515/jisys-2019-0155>.
44. S. Ahmed, K.K. Ghosh, L. Garcia-Hernandez, A. Abraham, **R. Sarkar**, "Improved coral reefs optimization with adaptive  $\beta$ -hill climbing for feature selection". *Neural Computing & Applications*, Vol. 33, pp. 6467–6486, 2021. <https://doi.org/10.1007/s00521-020-05409-1>
45. S.K. Bera, S. Ghosh, S. Bhowmik, **R. Sarkar, M. Nasipuri** "A non-parametric binarization method based on ensemble of clustering algorithms", *Multimed Tools and Applications*, Vol. 80, pp. 7653–7673, 2021. <https://doi.org/10.1007/s11042-020-09836-z>
46. S. Bhowmik, S. Kundu, **R. Sarkar**, "BINYAS: A Complex Document Layout Analysis System", *Multimedia Tools and Applications*, 80, pp. 8471–8504, 2021, <https://doi.org/10.1007/s11042-020-09832-3>
47. S.K. Ghosal, A. Chatterjee, **R. Sarkar**, "Image steganography based on Kirsch edge detection", *Multimedia Systems* Vol. 27, pp. 73–87, 2021. <https://doi.org/10.1007/s00530-020-00703-3>
48. R. Bhattacharya, S. Malakar, S. Ghosh, S. Bhowmik, **R. Sarkar**, "Understanding contents of filled-in Bangla form images", *Multimedia Tools and Applications*, Vol. 80, pp. 3529–3570, 2021. <https://doi.org/10.1007/s11042-020-09751-3>
49. N. Chakraborty, A. Chatterjee, P.K. Singh, A. F. Mollah, **R. Sarkar**, "Application of daisy descriptor for language identification in the wild", *Multimedia Tools and Applications*, Vol. 80, pp. 323–344, 2021. <https://doi.org/10.1007/s11042-020-09728-2>
50. A. Banerjee, P. K. Singh and **R. Sarkar**, "Fuzzy Integral-Based CNN Classifier Fusion for 3D Skeleton Action Recognition," in *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 31, no. 6, pp. 2206-2216, 2021, doi: 10.1109/TCSVT.2020.3019293
51. Sabyasachi Chatterjee, Prabir Banerjee, **Mita Nasipuri**, "Enhancing localization accuracy of collaborative cognitive radio users by internal noise mitigation", *Telecommunication Systems*, vol. 76, issue 2, pp. 187-206, 2021
52. S. Das, A. Kolya, **D. Das.** 2020. Sentiment classification with GST tweet data on LSTM based on polarity-popularity model, *SADHNA* vol. (2020) 45:140
53. R. Manna, **D. Das** and A. Gelbukh. 2021. Question-Answering and Recommendation System on Cooking Recipes, *Computación y Sistemas*, Vol. 25, No. 1, 2021, pp. 223–235, doi: 10.13053/CyS-25-1-3899
54. A.F.R. Khilji, R. Manna, S.R.Laskar, P. Pakray, **D. Das**, S. Bandyopadhyay, A. Gelbukh. 2020. Question Classification and Answer Extraction for Developing a Cooking QA System. *Computación y Sistemas*, Vol. 24, No. 2, 2020, pp. 927–933, doi: 10.13053/CyS-24-2-3445

## Annual Report 2020-2021

55. A Das & **D Saha** (2021), “Deep Learning based Bengali Question Answering System using Semantic Textual Similarity”, *Multimedia Tools and Application*, Springer, DOI:[10.1007/s11042-021-11228-w](https://doi.org/10.1007/s11042-021-11228-w) (SCI Indexed)
56. Subrata Pan and **Diganta Saha** (2021), “Performance Evaluation of Part-of-Speech Tagging for Bengali Text”, *Journal of The Institution of Engineers (India): Series B*, Springer, <https://doi.org/10.1007/s40031-021-00630-5> . (SCOPUS)
57. A Das, J Mandal, Z Danial, A R Pal, **D Saha** (2020), “A Novel Approach for Automatic Bengali Question Answering System using Semantic Similarity Analysis”, *INTERNATIONAL JOURNAL OF SPEECH TECHNOLOGY*, ACM Springer, Vol. 23, Issue. 04, pp. 873-884, 2020. ISSN-1381-2416. DOI:[10.1007/s10772-020-09760-5](https://doi.org/10.1007/s10772-020-09760-5) (SCI indexed)
58. A Das, **D Saha** (2020), “Enhancing the Performance of Semantic Search in Bengali using Neural Net and Other Classification Techniques”, *International Journal of Engineering and Advanced Technology*, Volume-9 Issue-3, ISSN: 2249 – 8958. Retrieval Number: B3566129219/2020©BEIESP DOI: 10.35940/ijeat.B3566.029320(SCOPUS)
59. A. Bhattacharya, M. Sarder, M. Chatterjee and **D. Saha** (2020), “Efficient integration of logical topology design and survivable traffic grooming for throughput enhancement in WDM optical networks”, *IEEE Access*, vol. 8 pp. 58155-58170 . (SCIE indexed)
60. P. Roy, **C. Chowdhury**, M. Kundu, D. Ghosh, S. Bandyopadhyay (2020) Novel Weighted Ensemble classifier for Smartphone based Indoor Localization, *Expert Systems with Applications*, Elsevier, 113758, ISSN 0957-4174, <https://doi.org/10.1016/j.eswa.2020.113758> (August 2020).
61. M. Roy, **C. Chowdhury**, S. Bhattacharya, N. Aslam (2020) Finding optimal transmission strategy for intra-WBAN communications, *IET Electronics Letters*, DOI: 10.1049/el.2020.2169 . (October 2020)
62. J. Saha, D. Ghosh, **C. Chowdhury**, S. Bandyopadhyay (2020) Smart Handheld based Human Activity Recognition using Multiple Instance Multiple Label Learning, *Wireless Personal Communications*, Springer. DOI: <https://doi.org/10.1007/s11277-020-07903-0>. (December 2020)
63. J. Saha, **C. Chowdhury**, D. Ghosh, S. Bandyopadhyay (2020) A Detailed Human Activity Transition Recognition Framework for Grossly Labeled Data from Smartphone Accelerometer, *Multimedia Tools and Applications*, Springer, DOI: <https://doi.org/10.1007/s11042-020-10046-w>. (December 2020)
64. M. Bakshi, **C. Chowdhury**, **U. Maulik** (2021) Energy-efficient cluster head selection algorithm for IoT using modified glow-worm swarm optimization, *The Journal of Supercomputing*, Springer, <https://doi.org/10.1007/s11227-020-03536-z>. (January 2021)
65. P. Roy, **C. Chowdhury** (2021) A Survey of Machine Learning Techniques for Indoor Localization and Navigation Systems, *Journal of Intelligent & Robotic Systems*, Springer 101(63), <https://doi.org/10.1007/s10846-021-01327-z> (March 2021).
66. P. Roy, **C. Chowdhury** (2021) Designing an ensemble of classifiers for smartphone-based indoor localization irrespective of device configuration, *Multimedia Tools and Applications*, Springer, <https://doi.org/10.1007/s11042-020-10456-w>. (March 2021)
67. R. Das, A.I. Middy, A.I., **S. Roy**, “High granular and short term time series forecasting of PM 2.5 air pollutant - a comparative review”, *Artificial Intelligence Review*, Springer, (March 2021). <https://doi.org/10.1007/s10462-021-09991-1>
68. S. Banerjee, **S. Roy**, S. Khatua, “Efficient resource utilization using multi-step-ahead workload prediction technique in cloud”, *Journal of Supercomputing*, Springer, 77, 10636–10663 (March 2021). <https://doi.org/10.1007/s11227-021-03701-y>
69. M. Deb, **S. Roy**, “Enhanced-Pro: A New Enhanced Solar Energy Harvested Prediction Model for Wireless Sensor Networks”, *Wireless Personal Communications*, Springer, 117, 1103–1121 (March 2021). <https://doi.org/10.1007/s11277-020-07913-y>
70. S. Bhattacharya, S. Sinha, **S. Roy**, A. Gupta, “Towards finding the best-fit distribution for OSN data”, *Journal of Supercomputing*, Springer, 76, 9882–9900 (December 2020). <https://doi.org/10.1007/s11227-020-03232-y>
71. A. Ray, **C. Chowdhury**, S. Mallick, S. Mandol, S. Paul, **S. Roy**, “Designing Energy Efficient Strategies Using Markov Decision Process for Crowd-Sensing Applications”, *Mobile Networks and Applications*, Springer, 25, 932–942 (December 2020). <https://doi.org/10.1007/s11036-020-01522-6>

## Annual Report 2020-2021

72. A. I., Middya, **S. Roy**, J. Dutta, R. Das, "JUSense: A Unified Framework for Participatory-based Urban Sensing System", *Mobile Networks and Applications*, Springer, 25, 1249–1274 (August 2020). <https://doi.org/10.1007/s11036-020-01539-x>
73. H. N. Somehsaraei, **S. Ghosh**, S. Maity, P. Pramanik, S. De, and M. Assadi, "Automated Data Filtering Approach for ANN Modeling of Distributed Energy Systems: Exploring the Application of Machine Learning", *Energies*, 13(14):3750, July 2020. DOI: 10.3390/en13143750.
74. R. Roy, **S. Ghosh** and A. Ghosh, "Clinical Ultrasound Image Standardization using Histogram Specification", *Computers in Biology and Medicine*, vol. 120, pp. 1037-1046, 2020.
75. Sourav Pramanik, Debotosh Bhattacharjee, Mita Nasipuri, Ondrej Krejcar, "LINPE-BL: A Local Descriptor and Broad Learning for Identification of Abnormal Breast Thermograms," *IEEE Transactions on Medical Imaging*, 2021.
76. Asish Bera, Debotosh Bhattacharjee, Hubert P. H. Shum, "Two-stage human verification using HandCAPTCHA and anti-spoofed finger biometrics with feature selection," *Expert Systems with Applications*, Vol. 171, 2021.
77. Asish Bera, Ratnadeep Dey, Debotosh Bhattacharjee, Mita Nasipuri, and Hubert P. H. Shum, "Spoofing detection on hand images using quality assessment," *Multimedia Tools and Applications*, Vol 80, pages28603–28626, 2021.
78. Saikat Chakraborty, Riktim Mondal, Pawan Kumar Singh, Ram Sarkar, and Debotosh Bhattacharjee, "Transfer learning with fine tuning for human action recognition from still images," *Multimedia Tools and Applications*, Vol 80, pp. 20547–20578, 2021.
79. Subhadeep Koley, Hiranmoy Roy, Debotosh Bhattacharjee, "Gammadion binary pattern of Shearlet coefficients (GBPSC): An illumination-invariant heterogeneous face descriptor, *Pattern Recognition Letters*, Vol. 145, Pages 30-36, 2021.
80. Ritam Guha, Ali Hussain Khan, Pawan Kumar Singh, Ram Sarkar, and Debotosh Bhattacharjee, "CGA: a new feature selection model for visual human action recognition," *Neural Computing and Applications*, Vol. 33, pp. 5267–5286, 2021.
81. Koushik Dutta, Debotosh Bhattacharjee, Mita Nasipuri, Ondrej Krejcar, "Complement component face space for 3D face recognition from range images," *Applied Intelligence* 51 (4), 2500-2517, 2021.
82. Prमित Ghosh, Debotosh Bhattacharjee, Mita Nasipuri, "Dynamic Diet Planner: A Personal Diet Recommender System Based on Daily Activity and Physical Condition," *IRBM*, Elsevier, 2021.
83. Prमित Ghosh, Debotosh Bhattacharjee, Mita Nasipuri, "Passive Auto Focusing of Pathological Microscope with Intelligent Field Image Collection Mechanism," *Journal of Medical Systems*, 45(2):25, 2021. DOI: 10.1007/s10916-020-01688-2. PMID: 33452582.
84. Arindam Kar, Sourav Pramanik, Arghya Chakraborty, Debotosh Bhattacharjee, Edmond S. L. Ho, and Hubert P. H. Shum, "LMZMPM: Local Modified Zernike Moment Per-unit Mass for Robust Human Face Recognition," *IEEE Transactions on Information Forensics and Security*, Vol. 16, pp. 495-509, 2021.
85. Debapriya Banik, Kaushiki Roy, Debotosh Bhattacharjee, Mita Nasipuri, "Polyp-Net: A Multi-model Fusion Network for Polyp Segmentation," *IEEE Transactions on Instrumentation and Measurement*, Vol. 70, pp. 1-12, 2021.
86. Shawli Bardhan, Satyabrata Nath, Tathagata Debnath, Debotosh Bhattacharjee, Mrinal Kanti Bhowmik, "Designing of an inflammatory knee joint thermogram dataset for arthritis classification using deep convolution neural network," *Quantitative InfraRed Thermography Journal*, 2020, DOI: 10.1080/17686733.2020.1855390.
87. Kaushiki Roy, Cody W Lewis, Gordon Chan, Debotosh Bhattacharjee, "Automated classification of mitotic catastrophe by use of the centromere fragmentation morphology", *Biochemistry and Cell Biology*, Vol. 99(2), pp. 261-271, 2021.
88. Debadyuti Mukherjee, Riktim Mondal, Pawan Kumar Singh, Ram Sarkar, Debotosh Bhattacharjee, "EnsemConvNet: a deep learning approach for human activity recognition using smartphone sensors for healthcare applications," *Multimedia Tools and Applications*, Vol. 79, pp. 31663–31690, 2020.
89. Koushik Dutta, Debotosh Bhattacharjee, Mita Nasipuri, "SpPCANet: a simple deep learning-based feature extraction approach for 3D face recognition," *Multimedia Tools and Applications*, Vol. 79, pp. 31329–31352, 2020,

## Annual Report 2020-2021

90. Gitanjali Mandal, Debotosh Bhattacharjee, “Learning-Based Single Image Super-Resolution with Improved Edge Information”, *Pattern Recognition and Image Analysis*, 30 (3), 391-400, 2020.
91. Siddhartha Banerjee, Chandesham Prabhakar, Pravash Chandra Chakraborti, Sanjoy Kumar Saha, Image processing based automated solution for analysis of dimple fracture surfaces, *Engineering Research Express*, IOP Publishing, Vol. 2(4), Dec., 2020
92. Sayan Das, Nilanjana Dutta Roy, Arindam Biswas, Sanjoy Kumar Saha, A novel methodology for vessel extraction from retinal fundus image and detection of neovascularization, *Multimedia Tools and Applications*, Springer, Vol. 80(3), 4093-4110, Jan. 2021
93. Debatri Chatterjee, Anirban Chowdhury, Rahul Gavas, Aniruddha Sinha, Sanjoy Kumar Saha, Real Time Estimation of Task specific Self-confidence Level based on Brain Signals, *Multimedia Tools and Applications*, Vol. 80, 19203-19217, Feb. 2021
94. Aritra Mukherjee, Sourya Dipta Das, Jasorsi Ghosh, Ananda S. Chowdhury, Sanjoy Kumar Saha, Semantic Segmentation of Surface from Lidar Point Cloud, *Multimedia Tools and Applications*, 2020
95. Chatterjee, S., & Sarkar, K. (2021). Machine transliteration using SVM and HMM. *International Journal of Advanced Intelligence Paradigms*, 19(1), 3-27.
96. Sarkar, K. (2020). Heterogeneous classifier ensemble for sentiment analysis of Bengali and Hindi tweets. *Sādhanā*, 45(1), 1-17.
97. Swarnendu Ghosh, Nibaran Das, Priyam sarkar and Mita Nasipuri, JU-VNT: a multi-spectral dataset of indoor object recognition using visible, near-infrared and thermal spectrum. *Multimed Tools Appl* 80, 17807–17826 (2021). <https://doi.org/10.1007/s11042-020-10302-z>
98. Bodhisatwa Mandal, Ritesh Sarkhel, Swarnendu Ghosh, Nibaran Das, Mita Nasipuri, Two-phase Dynamic Routing for Micro and Macro-level Equivariance in Multi-Column Capsule Networks in *Pattern Recognition*, 109, 107595:1-12, (2021), <https://doi.org/10.1016/j.patcog>
99. Kalpita Dutta, Malyaban Bal, Arpita Basak, Swarnendu Ghosh, Nibaran Das, Mahantapas kundu, and Mita Nasipuri, “Multi scale mirror connection based encoder decoder network for text localization,” *Pattern Recognit. Lett.*, vol. 135, pp. 64–71, 2020, doi: <https://doi.org/10.1016/j.patrec.2020.04.002>.
100. Riya Guha, Nibaran Das, Mahantapas Kundu, Mita Nasipuri, and K. C. Santosh, “DevNet: An Efficient CNN Architecture for Handwritten Devanagari Character Recognition,” *Int. J. Pattern Recognit. Artif. Intell.*, 34( 12), 2052009 (2020), <https://doi.org/10.1142/S0218001420520096>.
101. Animesh Singh, Ritesh Sarkhel, Nibaran Das, Mahantapas Kundu and Mita Nasipuri, A Skip-Connected Multi-column Network for Isolated Handwritten Bangla Character and Digit Recognition. *in Sensing and Imaging* 21, 28 (2020). <https://doi.org/10.1007/s11220-020-00288-1>
102. Soumya Ukil, Swarnendu Ghosh, Sk Md Obaidullah, K. C. Santosh, Kaushik Roy, and Nibaran Das, Improved word-level handwritten Indic script identification by integrating small convolutional neural networks. *Neural Comput & Applic* 32, 2829–2844 (2020). <https://doi.org/10.1007/s00521-019-04111-1>
103. Arnab Banerjee, Nibaran Das, and K. C. Santosh, Weber local descriptor for image analysis and recognition: a survey. *Vis Comput* (2020). <https://doi.org/10.1007/s00371-020-02017-x>

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Pratyoy Das and Sudip Kumar Naskar. *Selection of Connecting Phrases in Weather Forecast*. Vinit Kumar Gunjan, P. N. Suganthan, Jan Haase, Amit Kumar, Balasubramanian Raman (eds) Cybernetics, Cognition and Machine Learning Applications, Springer, pp. 33–42, 21 April 2020.
2. Shaswata Saha, Sarmistha Neogy, “A Comparative Study of Machine Learning and Deep Learning for Prediction of COVID-19”, In: Tavares J.M.R.S., Chakrabarti S., Bhattacharya A., Ghatak S. (eds) *Emerging Technologies in Data Mining and Information Security*. Lecture Notes in Networks and Systems, vol 164. Springer, Singapore, pp. 563-570, [https://doi.org/10.1007/978-981-15-9774-9\\_52](https://doi.org/10.1007/978-981-15-9774-9_52), ISBN 978-981-15-9774-9
3. Shaswata Saha, Sarmistha Neogy, “Permission Based Access Control for Healthcare Systems”, In: Bhattacharjee A., Borgohain S., Soni B., Verma G., Gao XZ. (eds) *Machine Learning, Image*

## Annual Report 2020-2021

- Processing, Network Security and Data Sciences. MIND 2020. Communications in Computer and Information Science, vol 1240. Springer, Singapore, pp. 43-56, ISBN 978-981-15-6315-7
4. R. Mondal, D. Mukhopadhyay, S. Barua, P. K. Singh, **R. Sarkar**, **D. Bhattacharjee**, “A study on smartphone sensor based Human Activity Recognition using deep learning approaches”, *Handbook of Computational Intelligence in Biomedical Engineering and Healthcare*, Elsevier, eds. By J. Nayak et al. pp. 343-369, 2021, ISBN: 978-0-12-822260-7
  5. M. Biswas, S. Rahaman, S. Kundu,, P. K. Singh, **R. Sarkar** (2021) Spoken Language Identification of Indian Languages Using MFCC Features. In: Kumar P., Singh A.K. (eds) Machine Learning for Intelligent Multimedia Analytics. Studies in Big Data, vol 82. Springer, Singapore. [https://doi.org/10.1007/978-981-15-9492-2\\_12](https://doi.org/10.1007/978-981-15-9492-2_12), ISBN: 978-981-15-9491-5 (Print)
  6. R. Bhattacharya, S. Malakar, F. Schwenker, **R. Sarkar** (2021) Fuzzy-Based Pseudo Segmentation Approach for Handwritten Word Recognition Using a Sequence to Sequence Model with Attention. In: Del Bimbo A. et al. (eds) Pattern Recognition. ICPR International Workshops and Challenges. ICPR 2021. Lecture Notes in Computer Science, vol 12662. Springer, Cham. [https://doi.org/10.1007/978-3-030-68790-8\\_45](https://doi.org/10.1007/978-3-030-68790-8_45), ISBN: 978-3-030-68789-2 (Print)
  7. R. Chakraborty, S. Saha, A. Bhattacharyya, S. Sen, **R. Sarkar**, K. Roy. (2021) Recognition of Online Handwritten Bangla and Devanagari Basic Characters: A Transfer Learning Approach. In: Singh S.K., Roy P., Raman B., Nagabhushan P. (eds) Computer Vision and Image Processing. CVIP 2020. Communications in Computer and Information Science, vol 1377. Springer, Singapore. [https://doi.org/10.1007/978-981-16-1092-9\\_45](https://doi.org/10.1007/978-981-16-1092-9_45), ISBN: 978-981-16-1091-2 (Print)
  8. A. Kumar, R. Garg, A. Anand, **R. Sarkar**. (2021) An Improved Salp Swarm Algorithm Based on Adaptive  $\beta$ -Hill Climbing for Stock Market Prediction. In: Thampi S.M., Piramuthu S., Li KC., Berretti S., Wozniak M., Singh D. (eds) Machine Learning and Metaheuristics Algorithms, and Applications. SoMMA 2020. Communications in Computer and Information Science, vol 1366. Springer, Singapore. [https://doi.org/10.1007/978-981-16-0419-5\\_9](https://doi.org/10.1007/978-981-16-0419-5_9), ISBN: 978-981-16-0418-8 (Print)
  9. S. Das, A. K. Kolya, **D. Das**, 2019. Optimizing Social Media Data Using Genetic Algorithm. In Metaheuristic Approaches to Portfolio Optimization (ch. 6, pp. 126-153). IGI Global, ISBN13: 9781522581031, DOI: 10.4018/978-1-5225-8103-1
  10. M. Dey and **D. Das**. 2019. Supervised Extractive Summarization of Text. In Book titled Data Visualization and Knowledge Engineering-Spotting Data points by Data Visualization with Artificial Intelligence, **Hemanth**, D. Jude, **Bhatia**, Madhulika, **Geman**, Oana (Eds.), pp. 109-132
  11. Riyanka Manna, **Dipankar Das**, Alexander Gelbukh. 2020. “*Information Retrieval-Based Question Answering System on Foods and Recipes*”, In: Advances in Computational Intelligence (MICAI 2020). Lecture Notes in Computer Science, vol. 12469. Pp. 260-270, Springer, DOI [https://doi.org/10.1007/978-3-030-60887-3\\_23](https://doi.org/10.1007/978-3-030-60887-3_23), ISBN 978-3-030-60886-6.
  12. Riyanka Manna, **Dipankar Das**, Alexander Gelbukh, “*Question Classification in a Question Answering System on Cooking*”, In: Advances in Computational Intelligence (MICAI 2020). Lecture Notes in Computer Science, vol. 12469, Pp 103-108, Springer. [https://doi.org/10.1007/978-3-030-60887-3\\_10](https://doi.org/10.1007/978-3-030-60887-3_10), ISBN 978-3-030-60886-6
  13. **D. Das**, S. Mondal and A. Ray. Classifying Hate Speeches shared in Twitter. In International symposium on Frontiers of Research in Speech and Music (FRSM), Springer series of Advances in Speech and Music Technology under Advances in Intelligent Systems and Computing (Ed. Anupam Biswas, Emile Wennekes, Tzung-Pei Hong, Alicja Wiczorkowska), pp. 381-393
  14. **D. Das** and R. Das. Human to Robotic Voice Conversion by employing Wave Patterns based on Gender and Emotions. In International symposium on Frontiers of Research in Speech and Music (FRSM), Springer series of Advances in Speech and Music Technology under Advances in Intelligent Systems and Computing (Ed. Anupam Biswas, Emile Wennekes, Tzung-Pei Hong, Alicja Wiczorkowska),pp. 367-379
  15. S. Ganguly, **D. Das**, A. Modak, S. Chakraborty. 2020. Multimodal Sentiment Analysis of Rabindra-Sangeet through Machine Learning Techniques. In International symposium on Frontiers of Research in Speech and Music (FRSM), Springer series of Advances in Speech and Music Technology under Advances in Intelligent Systems and Computing (Ed. Anupam Biswas, Emile Wennekes, Tzung-Pei Hong, Alicja Wiczorkowska),pp. 223-234.

## Annual Report 2020-2021

16. Shib Sankar Bhowmick, **Debotosh Bhattacharjee**; “MicroRNA-Based Cancer Classification Using Feature Selection Wrapper”; *Advanced Computing and Systems for Security*, volume 14, pages 197-209, Springer, Singapore, 2021
  17. Sourav Pramanik, **Debotosh Bhattacharjee**, Mita Nasipuri; “Breast Abnormality Detection Using Texture Feature Extracted by Difference-Based Variable-Size Local Filter (DVLf)”; *Proceedings of Research and Applications in Artificial Intelligence*, pages 111-120, Springer, Singapore, 2021
  18. Debapriya Banik, **Debotosh Bhattacharjee**; “Mitigating Data Imbalance Issues in Medical Image Analysis”; *Data Preprocessing, Active Learning, and Cost Perceptive Approaches for Resolving Data Imbalance*, pages 66-89, IGI Global, 2021
  19. Debapriya Banik, **Debotosh Bhattacharjee**, Mita Nasipuri; “Recent Advances in Intelligent Imaging Systems for Early Prediction of Colorectal Cancer: A Perspective”; *Enabling Machine Learning Applications in Data Science*, Pages 39-61, Springer, Singapore, 2021
  20. Riktim Mondal, Dibyendu Mukhopadhyay, Sayanwita Barua, Pawan Kumar Singh, Ram Sarkar, **Debotosh Bhattacharjee**; “A study on smartphone sensor-based Human Activity Recognition using deep learning approaches”; *Handbook of Computational Intelligence in Biomedical Engineering and Healthcare*, Pages 343-369, Academic Press, 2021
  21. Ratnadeep Dey, **Debotosh Bhattacharjee**, Mita Nasipuri; “Image Denoising Using Generative Adversarial Network”; *Intelligent Computing: Image Processing Based Applications*, pages 73-90, Springer, Singapore, 2020
  22. Swarnava Sadhukhan, Siddhartha Mallick, Pawan Kumar Singh, Ram Sarkar, **Debotosh Bhattacharjee**; “A comparative study of different feature descriptors for video-based human action recognition”; *Intelligent Computing: Image Processing Based Applications*, Pages 35-52, Springer, Singapore, 2020
  23. Koushik Dutta, **Debotosh Bhattacharjee**, Mita Nasipuri; “Pose Registration of 3D Face Images”; *Intelligent Computing: Image Processing Based Applications*, Pages 53-71, Springer, Singapore, 2020
  24. Koushik Dutta, **Debotosh Bhattacharjee**, Mita Nasipuri; “Volumetric Density of Triangulated Range Images for Face Recognition”; *Volumetric Density of Triangulated Range Images for Face Recognition*, Pages 58-84, Springer, Berlin, Heidelberg, 2020
  25. Ratnadeep Dey, **Debotosh Bhattacharjee**, Mita Nasipuri; “Object detection in rainy condition from video using YOLO based deep learning model”; *Advanced Computing and Systems for Security*, Pages 121-131, Springer, Singapore, 2020
  26. Debapriya Banik, **Debotosh Bhattacharjee**, Mita Nasipuri; “A multi-scale patch-based deep learning system for polyp segmentation”; *Advanced Computing and Systems for Security*, Pages 121-131, Springer, Singapore, 2020
  27. Priya Sen Purkait, Hiranmoy Roy, **Debotosh Bhattacharjee**; “Local shearlet energy gammodian pattern (LSEGP): a scale space binary shape descriptor for texture classification”; *Intelligence enabled research*, Pages 123-131, Springer, Singapore, 2020
  28. Ratnadeep Dey, **Debotosh Bhattacharjee**; “Single Image De-raining Using GAN for Accurate Video Surveillance”; *Intelligence enabled research*, Pages 7-11, Springer, Singapore, 2020
  29. Kaushiki Roy, **Debotosh Bhattacharjee**, Mita Nasipuri; “Automated Segmentation of Cervical Cells Using MSER Algorithm and Gradient Embedded Cost Function-Based Level-Set Method”; *Computer Vision and Machine Intelligence in Medical Image Analysis*, Pages 91-99, Springer, Singapore, 2020
  30. Joy Dutta, **Sarbani Roy**, “Universal IoT Framework”, *Interoperability in IoT for Smart Systems*, CRC Press, 2020. <https://www.taylorfrancis.com/chapters/edit/10.1201/9781003055976-3/universal-iot-framework-joy-dutta-sarbani-roy>
  31. Paramita Dey, **Sarbani Roy**, “Governance in Smart City: An Approach Based on Social Network”, In: Khan M.A., Algarni F., Quasim M.T. (eds) *Smart Cities: A Data Analytics Perspective*. Lecture Notes in Intelligent Transportation and Infrastructure. Springer, Cham. December 2020. [https://doi.org/10.1007/978-3-030-60922-1\\_4](https://doi.org/10.1007/978-3-030-60922-1_4)
- F. **Research Articles Published in Conference Proceedings during the year: (Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**

## Annual Report 2020-2021

1. T. Sahana, S. Paul, S. Basu, A.F. Mollah, Hand sign recognition from depth images with multi-scale density features for deaf mute persons, in: *Procedia Comput. Sci.*, Elsevier B.V., 2020: pp. 2043–2050. <https://doi.org/10.1016/j.procs.2020.03.243>.
2. T. Chakraborty, B. Barai, B. Chatterjee, N. Das, S. Basu, M. Nasipuri, Closed-Set Device-Independent Speaker Identification Using CNN, in: *Adv. Intell. Syst. Comput.*, Springer, 2020: pp. 291–299. [https://doi.org/10.1007/978-981-15-1084-7\\_28](https://doi.org/10.1007/978-981-15-1084-7_28).
3. Bandyopadhyay ,S.S., Halder, A.K., Chatterjee,P., Sroka, J., Nasipuri, M, Basu, S. 2020, Analysis of Large-Scale Human Protein Sequences Using an Efficient Spark Based DBSCAN Algorithm. In *Proceedings of International Conference on Frontiers in Computing and Systems, COMSYS-2020*, Springer.
4. Halder, A.K.,Mollah ,A.F., Chatterjee,P., Kole, D.K., Basu, S., Plewczynski, D.,2020. SeqPIP-2020: Sequence based Protein Interaction Prediction Contest. In *Proceedings of International Conference on Frontiers in Computing and Systems, COMSYS-2020*, Springer.
5. Panda, S., Ash, S., Chakraborty, N., Mollah, A.F., Basu, S. and Sarkar, R., 2020. Parameter Tuning in MSER for Text Localization in Multi-lingual Camera-Captured Scene Text Images. In *Computational Intelligence in Pattern Recognition* (pp. 999-1009). Springer, Singapore.
6. Paul, S., Bhattacharyya, A., Mollah, A.F., Basu, S. and Nasipuri, M., 2020. Hand Segmentation from Complex Background for Gesture Recognition. In *Emerging Technology in Modelling and Graphics* (pp. 775-782). Springer, Singapore.
7. Neelotpal Chakraborty, Ayatullah Faruk Mollah, Subhadip Basu, Ram Sarkar. Chakraborty, A “Bright-on-Dark, Dark-on-Bright”, Approach to Multilingual Scene Text Detection. In: Bhattacharjee D., Kole D.K., Dey N., Basu S., Plewczynski D. (eds) *Proceedings of International Conference on Frontiers in Computing and Systems. Advances in Intelligent Systems and Computing*, vol 1255. Springer, Singapore. [https://doi.org/10.1007/978-981-15-7834-2\\_18](https://doi.org/10.1007/978-981-15-7834-2_18)
8. S. Ray, S. Mukherjee and N. Mukherjee, "Performance Enhancement in Big Data handling", 2020 International Conference on Contemporary Computing and Applications (IC3A), 2020, pp. 17-22, doi: 10.1109/IC3A48958.2020.233261.
9. Kundu, N. Mukherjee, S. Mondal (2021) Building a Graph Database for Storing Heterogeneous Healthcare Data. In: Senjyu T., Mahalle P.N., Perumal T., Joshi A. (eds) *Information and Communication Technology for Intelligent Systems. ICTIS 2020. Smart Innovation, Systems and Technologies*, vol 196. Springer, Singapore. [https://doi.org/10.1007/978-981-15-7062-9\\_19](https://doi.org/10.1007/978-981-15-7062-9_19)
10. U. Sen, M. Sarkar and N. Mukherjee, "Hybrid Job Scheduling in Distributed Systems based on Clone Detection," 2020 Sixth International Conference on Parallel, Distributed and Grid Computing (PDGC), 2020, pp. 78-83, doi: 10.1109/PDGC50313.2020.9315855
11. Girish Biswas, Nandini Mukherjee, Memory Optimized Dynamic Matrix Chain Multiplication Using Shared Memory in GPU. In: Goswami D., Hoang T.A. (eds) *Distributed Computing and Internet Technology. ICDCIT 2021. Lecture Notes in Computer Science*, vol 12582. Springer, Cham. [https://doi.org/10.1007/978-3-030-65621-8\\_10](https://doi.org/10.1007/978-3-030-65621-8_10)
12. S. Ranjan Das, K. Sinha, N. Mukherjee, B.P. Sinha (2021), Delay and Disruption Tolerant Networks: A Brief Survey. In: Mishra D., Buyya R., Mohapatra P., Patnaik S. (eds) *Intelligent and Cloud Computing. Smart Innovation, Systems and Technologies*, vol 194. Springer, Singapore. [https://doi.org/10.1007/978-981-15-5971-6\\_32](https://doi.org/10.1007/978-981-15-5971-6_32)
13. S. R. Das, K. Sinha, N. Mukherjee, B. P. Sinha (2021), A Brief Survey on Placement of Access Points in Ultra-Dense Heterogeneous 5G Networks. In: Mishra D., Buyya R., Mohapatra P., Patnaik S. (eds) *Intelligent and Cloud Computing. Smart Innovation, Systems and Technologies*, vol 194. Springer, Singapore. [https://doi.org/10.1007/978-981-15-5971-6\\_90](https://doi.org/10.1007/978-981-15-5971-6_90)
14. Atanu Mandal, Amir Sinaeepourfard and Sudip Kumar Naskar. Deep Learning based Visual Data Analysis in Integrated Edge to Cloud Computing Environment. In the ACM ICDCN'21: Adjunct Proceedings of the 2021 International Conference on Distributed Computing and Networking, Nara, Japan, 5–8 January, 2021, pp. 7–12.
15. Jimmy Laishram, Kishorjit Nongmeikapam and Sudip Kumar Naskar. Deep Neural Model for Manipuri Multiword Named Entity Recognition with Unsupervised Cluster Feature. To be published



## Annual Report 2020-2021

- in the Proceedings of the 17th International Conference on Natural Language Processing (ICON 2020), IIT Patna, Bihar, India, 18–21 December, 2020.
16. Sukriti Si, Anisha Datta and Sudip Kumar Naskar. A New Approach to Claim Check-Worthiness Prediction and Claim Verification. To be published in the Proceedings of the 17th International Conference on Natural Language Processing (ICON 2020), IIT Patna, Bihar, India, 18–21 December, 2020.
  17. Souvick Das, Rajat Pandit and Sudip Kumar Naskar. A Rule Based Lightweight Bengali Stemmer. To be published in the Proceedings of the 17th International Conference on Natural Language Processing (ICON 2020), IIT Patna, Bihar, India, 18–21 December, 2020.
  18. Santanu Pal, Hongfei Xu, Nico Herbig, Sudip Kumar Naskar, Antonio Krueger, Josef van Genabith. The Transference Architecture for Automatic Post-Editing. In the proceedings of The 28th International Conference on Computational Linguistics (COLING'2020), Barcelona, Spain, 8–13 December, 2020, pp. 5963–5974.
  19. Anisha Datta, Shukrity Si, Urbi Chakraborty, Sudip Kumar Naskar. Spyder: Aggression Detection on Multilingual Tweets. In the Proceedings of the Second Workshop on Trolling, Aggression and Cyberbullying (TRAC-2), Marseille, France, May 11–16, 2020, pages 87–92.
  20. Arnab Mandal, Chintan K. Mandal. Map Merging for an Autonomous Multi-robotic System, Emerging Technologies in Data Mining and Information Security, Proceedings of IEMIS 2020, Volume 1, Kolkata, India, from 2-4 July, 2020. pages 169 - 178
  21. P. Saha, S. Patikar and S. Neogy, "A Correlation - Sequential Forward Selection Based Feature Selection Method for Healthcare Data Analysis", 2020 IEEE International Conference on Computing, Power and Communication Technologies (GUCON), 2020, pp. 69-72
  22. R. Mukhopadhyay, S. Neogy and S. Chattopadhyay, "Dynamic Relay Selection using a Greedy Cluster Strategy", 2020 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 2020.
  23. Paul J., **Sarkar Anasua**, Das N., Roy K. (2021) HOG and LBP Based Writer Verification. In: Bhattacharjee D., Kole D.K., Dey N., Basu S., Plewczynski D. (eds) Proceedings of International Conference on Frontiers in Computing and Systems. Advances in Intelligent Systems and Computing, vol 1255. Springer, Singapore. [https://doi.org/10.1007/978-981-15-7834-2\\_1](https://doi.org/10.1007/978-981-15-7834-2_1).
  24. S. Dey, R. Bhattacharya and **R. Sarkar**, "Median Filter Aided CNN Model for Removal of Gaussian Noise from Images", 2020 IEEE Recent Advances in Intelligent Computational Systems (RAICS), 2020, pp. 178-183, doi: 10.1109/RAICS51191.2020.9332492.
  25. A. Chakraborty, R. De, S. Malakar, F. Schwenker and **R. Sarkar**, "Handwritten Digit String Recognition using Deep Autoencoder based Segmentation and ResNet based Recognition Approach", 2020, 25th International Conference on Pattern Recognition (ICPR), 2021, pp. 7737-7742, doi: 10.1109/ICPR48806.2021.9412198.
  26. S. Bhowmik and **R. Sarkar**, "Classification of Text regions in a Document Image by Analyzing the properties of Connected Components," 2020, IEEE Applied Signal Processing Conference (ASPCON), 2020, pp. 36-40, doi: 10.1109/ASPCON49795.2020.9276688.
  27. R. Guha, K. K. Ghosh, S. Bhowmik and **R. Sarkar**, "Mutually Informed Correlation Coefficient (MICC) - a New Filter Based Feature Selection Method", 2020, IEEE Calcutta Conference (CALCON), 2020, pp. 54-58, doi: 10.1109/CALCON49167.2020.9106516
  28. A. Bhattacharya, S. Roy, N. Sarkar, S. Malakar and **R. Sarkar**, "Circuit Component Detection in Offline Handdrawn Electrical/Electronic Circuit Diagram", 2020, IEEE Calcutta Conference (CALCON), 2020, pp. 80-84, doi: 10.1109/CALCON49167.2020.9106527.
  29. K. Mukhopadhyay, R. Bose, A. Mondal, S. Kumar Bera, S. Bhowmik and **R. Sarkar**, "Removal of Salt and Pepper noise: A Game Theoretic Approach", 2020, IEEE Calcutta Conference (CALCON), 2020, pp. 122-126, doi: 10.1109/CALCON49167.2020.9106532.
  30. D. Banerjee, P. Bhowal, S. K. Bera and **R. Sarkar**, "Rectification of Camera Captured Document Images using Component Analysis", 2020, IEEE Calcutta Conference (CALCON), 2020, pp. 421-425, doi: 10.1109/CALCON49167.2020.9106495.
  31. Sandip Paul, Kumar Sankar Ray, **Diganta Saha** (2020) "Clinical Decision Support System using Fuzzy Logic Programming and Data Analysis"; Paper presented at 2nd International Conference

## Annual Report 2020-2021

- on Emerging Technologies in Data Mining and Information Security (IEMIS 2020), IEM Kolkata, 2 – 4 July 2020.
32. Sandip Paul, Kumar Sankar Ray, Diganta Saha (2020) “Application of Fuzzy Answer Set Programming in Hybrid Deep Neural-Symbolic Architecture”; Paper presented in IEEE International Conference for Convergence in Engineering (ICCE), NSCE, Kolkata, 5th-6th September, 2020.
  33. A. Bhattacharya, H. Kumbhakar, M. Chatterjee and **D. Saha** (2020), “Controlling Traffic Hops- A New Approach for Traffic Grooming in WDM Optical Networks”, Proc. of IEEE International Conference on Electronics, Computing and Communication Technologies 2020 (IEEE CONECC 2020), Bangalore, India.
  34. A. Dey, **S. Ghosh**, and A. Ghosh, “Band Elimination for Dimensionality Reduction of Hyperspectral Images Using Mutual Information”, in 2020 IEEE International Geoscience and Remote Sensing Symposium, IEEE IGARSS, pp. 2055-2058, USA (virtual), 2020
  35. Shyam Janam Mahato, Debapriya Banik, **Debotosh Bhattacharjee**; “Exploring Hand-Crafted Features and Transfer Learning for Polyp Segmentation”; International Conference on Computational Intelligence in Communications and Business Analytics, Pages 68-76, Springer, 2021
  36. Sanjoy Ghatak, Debotosh Bhattacharjee; “Video Indexing Through Human Face”; Proceedings of International Conference on Communication, Circuits, and Systems, Pages 99-107, Springer, Singapore, 2021
  37. Parama Bagchi, **Debotosh Bhattacharjee**, Mita Nasipuri; “A Novel Approach to 3D Face Registration for Biometric Analysis Using RCompute ICP”; Proceedings of International Conference on Frontiers in Computing and Systems, Pages 483-493, Springer, Singapore, 2021
  38. Subhadeep Koley, Hiranmoy Roy, Soumyadip Dhar, Debotosh Bhattacharjee; “Edge Detection based on Local-Friis-Radiation-Magnitude-Ratio (LFRMR)”; Fifth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), Pages 99-104, IEEE, 2020
  39. Bisakh Mondal, Nibaran Das, K.C. Santosh and Mita Nasipuri, "Improved Skin Disease Classification Using Generative Adversarial Network", in 2020 IEEE 33rd International Symposium on Computer-Based Medical Systems (CBMS), Rochester, MN, USA, 2020 pp. 520-525.
  40. Hmrishav Bandyopadhyay, Tanmoy Dasgupta, Nibaran Das, Mita Nasipuri, "A Gated and Bifurcated Stacked U-Net Module for Document Image Dewarping", 2020, 25th International Conference on Pattern Recognition (ICPR), 2021, pp. 10548-10554, doi: 10.1109/ICPR48806.2021.9413001.
  41. Tanmoy Sarkar, Animesh Hazra, Nibaran Das, Classification of Colorectal Cancer Histology Images Using Image Reconstruction and Modified DenseNet. In: Computational Intelligence in Communications and Business Analytics. CICBA 2021. Communications in Computer and Information Science, vol 1406. Springer, Cham. [https://doi.org/10.1007/978-3-030-75529-4\\_20](https://doi.org/10.1007/978-3-030-75529-4_20)
  42. Shuvayan Ghosh Dastidar, Kalpita Dutta, Nibaran Das, Mahantapas Kundu, Mita Nasipuri, Exploring Knowledge Distillation of a Deep Neural Network for Multi-script Identification. In: Computational Intelligence in Communications and Business Analytics. CICBA 2021. Communications in Computer and Information Science, vol 1406. Springer, Cham. [https://doi.org/10.1007/978-3-030-75529-4\\_12](https://doi.org/10.1007/978-3-030-75529-4_12)
  43. Md. Osman Gani, Somenath Kuiry, Alaka Das, Mita Nasipuri, Nibaran Das: Multispectral Object Detection with Deep Learning. In: Computational Intelligence in Communications and Business Analytics. CICBA 2021. Communications in Computer and Information Science, vol 1406. Springer, Cham. [https://doi.org/10.1007/978-3-030-75529-4\\_9](https://doi.org/10.1007/978-3-030-75529-4_9)
  44. Aritra Dey, Shyamali Mitra and Nibaran Das, "Handwritten Tibetan Character recognition based on ELM using modified HOG features", 2020 IEEE Calcutta Conference (CALCON), 2020, pp. 451-456, doi: 10.1109/CALCON49167.2020.9106541.
  45. Joy Dutta, **Sarbani Roy**, “Indoor Air Pollution Prediction using Time Series Forecasting Models”, 2nd INTERNATIONAL CONFERENCE ON EMERGING TECHNOLOGIES IN DATA MINING AND INFORMATION SECURITY, Proceedings of IEMIS 2020, Emerging Technologies in Data Mining and Information Security, Springer, 2-4 July, 2020.
  46. Baidik Chandra, Asif Iqbal Middya, **Sarbani Roy**, “Spatio-temporal Prediction of Noise Pollution using Participatory Sensing”, 2nd INTERNATIONAL CONFERENCE ON EMERGING

## Annual Report 2020-2021

- TECHNOLOGIES IN DATA MINING AND INFORMATION SECURITY, Proceedings of IEMIS 2020, Emerging Technologies in Data Mining and Information Security, Springer, July 2-4, 2020.
47. K Sarkar, SR Chowdhury, A Novel Sentence Scoring Method for Extractive Text Summarization, Proceedings of International Conference on Frontiers in Computing and Systems, Pages 169-179, 2021, Springer

### G. Patents Granted/ Published/ Filed during the year:

Name of the Inventors	Title of the Patent	National/ International	Status Granted/P ublished/ Filed	Patent Number	Date of Publication
1. U. Maulik and S. Kundu,	Device and Method for End-to-End Medical Safety in Social Shared Vehicles for Passengers and Driver	Indian	Filed	Application No. 202131013483 filed on 26.03.2021).	
2. S. Kundu and U. Maulik	Method and Device for Determining Safety Condition of A Place of Interest Remotely from Vehicle Infotainment Based on IoT	Indian	Filed	Patent Application No. 202031033675 filed on 06.08.2020.	
Pramit Ghosh and Debotosh Bhattacharjee	System and Method for detecting abnormal USG probe	Indian	Filed	Patent Application No.202031010199	19/03/2021 (U/S 11A)

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Sudip Kumar Naskar	Amir Sinaeepourfard	Norwegian University of Science and Technology (NTNU), Trondheim, Norway	Joint research and publication	Since 2019
Sudip Kumar Naskar	Arif Ahmed Sekh	UiT The Arctic University of Norway, Norway	Joint research and publication	Since 2019
Sudip Kumar Naskar	Santanu Pal, Hongfei Xu	Saarland University, Germany	Joint research and publication	Since 2018

**Annual Report 2020-2021**

<b>Sudip Kumar Naskar</b>	Nico Herbig, Antonio Kruger, Josef van Genabith	German Research Center for Artificial Intelligence (DFKI), Germany	Joint research and publication	Since 2018
<b>Sudip Kumar Naskar</b>	Kishorjit Nongmeikapam	IIIT, Manipu, India	Joint research and publication	Since 2019
<b>Sudip Kumar Naskar</b>	Jimmy Laishram	Manipur Technical University, Manipu, India	Joint research and publication	Since 2019
<b>Ujjwal Maulik</b>	Krishnanda Chattopadhyay	IICB, Kolkata, India	Joint research and publication	
<b>Ujjwal Maulik</b>	Debarka Sengupta	IIIT, Delhi, India	Joint research and publication	
<b>Ujjwal Maulik</b>	V. N. Uversky	Univ. Of South Florida, USA	Joint research and publication	
<b>Ujjwal Maulik</b>	Anirban Mukhopadhyaya	Kalyani Univ., Kalyani, India	Joint research and publication	
<b>Anasua Sarkar</b>	Mauno Vihinen	Lund University, Sweden	Joint research and publication	
<b>Chandreyee Chowdhury</b>	Nauman Aslam	Northumbria University, UK	Joint phd guidance and publication	Since 2014
<b>Chandreyee Chowdhury</b>	Suparna Biswas	Maulana Abul Kalam Azad University of Technology	Joint phd guidance and publication	Since 2015
<b>Sarbani Roy</b>	Sunirmal Khatua	University of Calcutta, India	Joint phd guidance and publication	Since 2012
<b>Sarbani Roy</b>	Amarnath Gupta	San Diego Supercomputer Center, University of California San Diego	Joint research and publication	Since 2018
<b>Susmita Ghosh</b>	Jonathan H Chan	KMUTT Bangkok	One of the Founding members of Innovative Cognitive Computing Research Center, Project Collaborator, Joint Research publication	Since 2019
<b>Susmita Ghosh</b>	H. N. Somehsaraei	University of Stavanger, Norway	Joint Research publication, Project Collaborator	Since 2017
<b>Susmita Ghosh</b>	M. Assadi	University of Stavanger, Norway	Joint Research publication, Project Collaborator	Since 2017

**Annual Report 2020-2021**

<b>Susmita Ghosh</b>	Y S. Zhang	Harvard Medical School	Project Collaborator	Since 2019
<b>Susmita Ghosh</b>	Sudipta De	Dept. of Mechanical Engg, JU	Joint Research publication, Project Collaborator	Since 2017
<b>Susmita Ghosh</b>	Badri N Subudhi	IIT Jammu	Project Collaborator	Since 2019
<b>Susmita Ghosh</b>	Rahul Roy	Gitam University	Joint Research publication	Since 2019
<b>Debotosh Bhattacharjee</b>	Mrinal Kanti Bhowmik	Tripura University	Joint Research, publication and Project collaboration	Since 2010
<b>Debotosh Bhattacharjee</b>	Amlan Chakrabarti	University of Calcutta	Joint PhD supervision and publication	Since 2003
<b>Debotosh Bhattacharjee</b>	Paramartha Dutta	Visva Bharati University	Joint Research and Publication	Since 2015
<b>Debotosh Bhattacharjee</b>	Arindam Kar	Indian Statistical Institute, Kolkata	Joint Research and publication	Since 2014
<b>Debotosh Bhattacharjee</b>	Gautam Majumdar	Regional Cancer Centre, Agartala, Tripura	Joint Research and publication	Since 2015
<b>Debotosh Bhattacharjee</b>	Ayan Seal	IIITDM, Jabalpur	Joint Research, publication and Project Collaboration	Since 2016
<b>Debotosh Bhattacharjee</b>	Asish Bera	Edge-Hill University, UK	Joint Research and publication	Since 2019
<b>Debotosh Bhattacharjee</b>	Edmond S. L. Ho	Northumbria University, UK	Joint Research and publication	Since 2017
<b>Debotosh Bhattacharjee</b>	Luis Rato	University of Evora, Portugal	Joint PhD supervision and publication	Since 2015
<b>Debotosh Bhattacharjee</b>	Ernestina Menasalvas	Universidad Politécnica de Madrid, Spain	Joint Research, publication and Project Collaboration	Since 2018
<b>Debotosh Bhattacharjee</b>	Consuelo Gonzalo-Martin	Universidad Politécnica de Madrid, Spain	Joint Research, publication and Project Collaboration	Since 2018
<b>Debotosh Bhattacharjee</b>	Gordon Chan	University of Alberta, Canada	Joint Research, publication and Project Collaboration	Since 2019
<b>Debotosh Bhattacharjee</b>	Christian Kollman	Medical University of Vienna, Austria	Joint Research, publication and Project Collaboration	Since 2019

**Annual Report 2020-2021**

<b>Debotosh Bhattacharjee</b>	Ondrej Krejcar	University of Hradec Kralove, Czech Republic	Joint Research and publication	Since 2019
<b>Debotosh Bhattacharjee</b>	Hubert P. H. Shum	Durham University, UK	Joint Research and publication	Since 2017
<b>Nibaran Das</b>	K. C. santosh	University of South Dakota	Joint Research publication	
<b>Mita Nasipuri</b>	Dr. Sourav Dutta	Executive Director IT, IDBI Bank Ltd.	Industrial collaboration and joint research	Since 2017

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**B. Books/Monographs Edited:**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
M. R. Kanjilal, <b>M. Nasipuri</b> , M. Mitra eds.	3rd International Conference on Computational Advancement in Communication, Circuits and Systems (ICCACCS 2020) Subtitle: Computational Advancement in Communication, Circuits and Systems	Springer	Hardcover ISBN 978-981-16-4034-6 Series ISSN 1876-1100	2021
Arnab Kumar Maji, Goutam Saha, Sufal Das, <b>Subhadip Basu</b> , João Manuel RS Tavares	Proceedings of the International Conference on Computing and Communication Systems-I3CS 2020 NEHU, Shillong, India. 630 pages	Springer	ISBN: 9813340835	2021

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
One Day Virtual Workshop on Remotely Sensed Data Analysis	Susmita Ghosh, Organized by IEEE GRSS Kolkata Chapter	No	Virtual	13 March, 2021
Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III	Mita Nasipuri Jt- Coordinator,  Thematic area: Computing, Information and Data Science		Virtual	26-27 February, 2021

## Annual Report 2020-2021

### D. Refresher Courses Organized:

(Name of the Teachers, Title of the Course, if any, Duration, Place)

Title of the Course	Name of the Coordinator(s)	Place	Date
RC on Data Science & its Applications (IDC)	Chintan Kumar Mandal, Dipankar Das	Jadavpur University, Kolkata	22.02.2021 to 06.03.2021

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Sudip Kumar Naskar</b>	Invited Lecture	UGC-HRDC Interdisciplinary Refresher Course on “Data Science and its Applications” (RCCOMI2021)	Jadavpur University	22 February – 6 March, 2021
<b>Sudip Kumar Naskar</b>	Invited Lecture	IEEE Computational Intelligence Society (Kolkata Chapter) sponsored One day International webinar on “State of the art and future of Text Mining”	Visva-Bharati	2 November, 2020
<b>Sudip Kumar Naskar</b>	Invited Lecture	AICTE sponsored ATAL FDP on “Artificial Intelligence in Natural Language Processing”	KIIT Deemed to be University, Bhubaneswar, Odisha	15–19 October, 2020
<b>Sudip Kumar Naskar</b>	Invited Lecture	Two Days’ International Webinar on Linguistics, Machine Learning & Artificial Intelligence	Haldia Institute of Technology, Haldia, West Bengal, India	10–11 August, 2020
<b>Sudip Kumar Naskar</b>	Session Chair	“Machine Learning” in the 7th International Conference on Mathematics and Computing (ICMC 2021)	IEST, Shibpur, India.	March 2-5, December, 2021
<b>Sudip Kumar Naskar</b>	Session Chair	“NLP for Education” in the 17th International Conference on Natural Language Processing (ICON 2020)	IIT Patna, Bihar, India	18-21 December, 2020
<b>Ram Sarkar</b>	Invited Lecture	Refresher Course on “Data Science and its Application” Topic: Meta-heuristic Techniques for Feature Selection	Department of CSE and UGC HRDC, JU	2 March, 2021
<b>Chintan Kumar Mandal</b>	Invited Lecture	Refresher Course on “Data Science and its Application” Topic: Prediction Modelling using Kalman Filter	Department of CSE and UGC MHRD, JU	5 March, 2021

**Annual Report 2020-2021**

<b>Nandini Mukherjee</b>	Invited Lecture	SDP on Recent Advances in High-performance Distributed Computing Topic: Democratization of High Performance Computing in the era of Big Data“	Department of Computer Science and Engineering, Aliah University	18 August, 2020
<b>Nandini Mukherjee</b>	Invited Lecture	Faculty Development Program on “Multimedia in Teaching and Learning”	Department of Zoology, Palwal College Shikohabad, Firozabad, UP	27 August to 2 September, 2020
<b>Nandini Mukherjee</b>	Invited Lecture	Short term course on Cloud Computing Topic: Sensing-as-a-Service: Building a Sensor Cloud Infrastructure	NIT, Jalandhar and Rajib Gandhi National Institute of Youth Development (RGNIYD), Tamil Nadu	16-20 November, 2020 (lectured on 19 November 2020)
<b>Nandini Mukherjee</b>	Invited Lecture	Faculty Development Program on Cloud Computing and Services	Department of Information Technology, Techno India, Salt Lake and E&ICT Academy, NIT Patna	14-18 December, 2020 (lectured on 17 December, 2020)
<b>Nandini Mukherjee</b>	Invited Lecture	Short term course on Internet of Things: Architectures, Protocols, Applications and Security Concerns	Department of Computer Science and Technology, IEST, Shibpur	14-18 December, 2020 (lectured on 16 December, 2020)
<b>Nandini Mukherjee</b>	Invited Lecture	Short Term Workshop on MOOC	Department of Library and Information Science, Jadavpur University	23 February to 1 March 2021 (lectured on 1 March 2021)
<b>Nandini Mukherjee</b>	Invited Lecture	UGC-HRDC, Jadavpur University sponsored refresher course on Data Science and its Applications Topic: “High Performance Computing for Data Science”	Department of Computer Science and Engineering, Jadavpur University	22nd February 2021 to 6 March, 2021 (lectured on 27 February, 2021)
<b>Ujjwal Maulik</b>	Invited Lecture	UGC-HRDC Inter-disciplinary Refresher Course on “Data Science	Jadavpur University	22 February – 6 March, 2021



**Annual Report 2020-2021**

		and its Applications” (RCCOMI2021)		
<b>Sarmistha Neogy</b>	Invited Lecture	5-day workshop on “Cloud, IoT and Data Science applications”	MAKAUT	September 18 -22, 2020
<b>Sarmistha Neogy</b>	Invited Lecture	6-day STTP on “Big Data Analytics using Soft Computing Tools”,	MCKVIE, West Bengal	October 5-10, 2020
<b>Sarmistha Neogy</b>	Invited Lecture	TEQIP funded FDP on “IoT Security”	MAKAUT	November 7– 11, 2020
<b>Sarmistha Neogy</b>	Invited Lecture	UGC HRDC Refresher Course “Data Science and its applications”	Department of Computer Science and Engineering, Jadavpur University	22 February 2021 to 6 March, 2021
<b>Diganta Saha</b>	Invited Lecture	UGC HRDC Refresher Course “Data Science and its applications”Topic : Natural Language Processing and Data Science	Department of Computer Science and Engineering, Jadavpur University	22nd February 2021 to 6 March, 2021
<b>Diganta Saha</b>	Session Chair	International Conference on Research and Applications in Artificial Intelligence (RAAI) – 2020	Department of Information Technology, RCC Institute of Information Technology, Kolkata, India	19- 20 December, 2020
<b>Diganta Saha</b>	Session Chair	2 <sup>nd</sup> International Conference on Data Science and Applications (ICDSA 2021)	School of Mobile Computing and Communication, Jadavpur University, Kolkata, India and Soft Computing and Research Society	10 – 11 April, 2021
<b>Chandreyee Chowdhury</b>	Invited lecture		KLEF, Hyderabad	March 20, 2021
<b>Chandreyee Chowdhury</b>	Invited lecture	Refresher course on Data Science and its Applications	UGC-HRDC, Jadavpur University	22 February 2021- 6 March, 2021
<b>Chandreyee Chowdhury</b>	Tutorial	22nd International Conference on Human-Computer Interaction with Mobile Devices and Services, ACM	University of Twente, Germany (held online)	05-08 October,2020

**Annual Report 2020-2021**

<b>Chandreyee Chowdhury</b>	Invited lecture	Webinar on “Future Generation Computing and Applications: Smart devices”	SMCC, Jadavpur University in collaboration with Government College of Engineering and Ceramic Technology	19 September, 2020
<b>Chandreyee Chowdhury</b>	Invited lecture	5-day Workshop on “Cloud, IoT and Data Science applications”	MAKAUT, West Bengal with Islamic University of Science and Technology (IUST), Jammu and Kashmir	18-22 September, 2020
<b>Chandreyee Chowdhury</b>	Session Chair	2nd INTERNATIONAL CONFERENCE ON EMERGING TECHNOLOGIES IN DATA MINING AND INFORMATION SECURITY (IEMIS 2020)	Institute of Engineering & Management, Kolkata	2-4 July, 2020
<b>Chandreyee Chowdhury</b>	Invited lecture	International Web Colloquium on Cyber Cloud Computing 2020	AKS University, Satna	8 June, 2020
<b>Sarbani Roy</b>	Invited lecture	Two days long Webinar on Future Generation Computing and Applications -- A walk through of Deep Learning, Social Networking, Internet of Things and Quantum Computing Topic: IoT-Cloud System for Monitoring Applications (08/08/2020)	Government College of Engineering & Ceramic Technology, Kolkata	8-9 August, 2020
<b>Sarbani Roy</b>	Invited lecture	SDP on Recent Advances in High-performance Distributed Computing Topic: Migration Techniques in Cloud: Overview and Research Challenges (18/08/2020)	Department of Computer Science and Engineering, Aliah University, Kolkata	18 August, 2020
<b>Sarbani Roy</b>	Invited lecture	AICTE Training & Learning (ATAL) Faculty Development Program on Data Sciences	Tripura Institute of Technology	24-28 August, 2020

**Annual Report 2020-2021**

		Topic: Cloud Computing for Data Science (28/08/2020)		
<b>Sarban Roy</b>	Invited lecture	International Faculty Development Program on Advances in technologies, evolving new dimensions in e-society Topic: Participatory Sensing based Societal Applications (04/09/2020)	JIS College of Engineering, Kolkata	2-6 September, 2020
<b>Sarban Roy</b>	Invited lecture	5-day Workshop on “Cloud, IoT and Data Science applications  Topic: Hadoop Distributed Framework and overview of Spark (date: 18/09/2020) Topic: Overview of IoT and Monitoring applications (date: 20/09/2020)	TEQIP-III of Maulana Abul Kalam Azad University of Technology, WB and organized in association with Islamic University of Science and Technology (IUST), Jammu and Kashmir	18-22 September, 2020
<b>Sarban Roy</b>	Invited lecture	Webinar on “Future Generation Computing and Applications: Cloud Computing” Topic: Migration techniques in Cloud: Overview and research challenges	SMCC, Jadavpur University in collaboration with Government College of Engineering and Ceramic Technology	26 September, 2020
<b>Sarban Roy</b>	Invited lecture	Short term course on Cloud Computing  Topic: Cloud Computing (20/11/2020)	NIT, Jalandhar and Rajib Gandhi National Institute of Youth Development (RGNIYD), Tamil Nadu	16-20 November, 2020
<b>Sarban Roy</b>	Invited lecture	Faculty Development Program on Cloud Computing & Services  Topic: Virtual Machine Migration Techniques in Cloud Environment (16/12/2020)	Department of Information Technology, Techno India, Salt Lake and E&ICT Academy, NIT Patna	14-18 December, 2020

**Annual Report 2020-2021**

<b>Sarbani Roy</b>	Invited lecture	Refresher course Topic: Cloud Computing for Data Science (26/02/2021)	UGC HRDC and Department of Computer Science, Jadavpur University	22 February-6 March, 2021
<b>Susmita Ghosh</b>	Invited Lecture	Webinar: Emerging Research Areas in Computer Science and Engineering Topic: Evolutionary Algorithms and Applications	Baba Ghulam Shah Badshah University Rajouri (held virtually)	28 May, 2020
<b>Susmita Ghosh</b>	Invited Lecture	APNNS/IEEE Education Forum Series: Deep Learning and Artificial Intelligence Summer School (DLAI3) Topic: Semi-Supervised Learning with Applications	Thailand (held online)	02 July, 2020
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 1st Faculty Induction Program Topic: Artificial Intelligence	UGC HRDC, JU (held online)	20 January, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored Interdisciplinary Refresher Course on “Data Science and its Applications” (RCCOMI2021) Topic: Feature Extraction Techniques and Principal Component Analysis	UGC HRDC and Department of Computer Science, Jadavpur University (held online)	24 February, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 2nd Faculty Induction Program Topic: Artificial Intelligence	UGC HRDC, JU (held online)	25 February, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 2nd Faculty Induction Program Topic: Machine Learning	UGC HRDC, JU (held online)	26 February, 2021
<b>Susmita Ghosh</b>	Invited Lecture	Third International Workshop on Multimedia Applications, IWMA 2021 Topic: Evolutionary Algorithms: What, How and Where	LNM Institute of Information Technology, Jaipur (held online)	05 March, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 3rd Faculty Induction	UGC HRDC, JU (held online)	11 March, 2021

### Annual Report 2020-2021

		Program Topic: Introduction to Artificial Intelligence		
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 3rd Faculty Induction Program Topic: Introduction to Machine Learning	UGC HRDC, JU (held online)	12 March, 2021
<b>Susmita Ghosh</b>	Invited Lecture	5-days FDP at NMAM Institute of Technology Topic: Introduction to Deep Learning	NITTE, Karnataka	24 March, 2021
<b>Susmita Ghosh</b>	Panelist Topic: AI and Cognitive Computing	APNS/IEEE Education Forum Series: Deep Learning and Artificial Intelligence Summer School (DLAI3)	Virtual (organized by KMUTT Thailand)	2 July, 2020
<b>Kamal Sarkar</b>	Invited Lecture	Refresher Course on “Data Science and its Application” Topic: Data Clustering (March 02, 2021)	Dept. of CSE and UGC HRDC, JU	22 February -6 March, 2021
<b>Sanjoy Kumar Saha</b>	Invited Lecture	AICTE sponsored Short term training program on Machine learning, pattern recognition and their application, Topic: Crowd video Analytics	St. Thomas College of Engineering., Kolkata	5 November, 2020
<b>Sanjoy Kumar Saha</b>	Invited Lecture	Topic: Stream Analytics	NIELIT Kolkata	February, 2021
<b>Sanjoy Kumar Saha</b>	Invited Lecture	Refresher Course on “Data Science and its Application” Topic: Video analytics	Dept. of CSE and UGC HRDC, JU	22 February- 6 March , 2021
<b>Sanjoy Kumar Saha</b>	Chaired a session	ICISS 2020		
<b>Sanjoy Kumar Saha</b>	Chaired a session	ICMC 2021		
<b>Nibaran Das</b>	Invited Lecture	Refresher Course on “Data Science and its Application” Topic: Neural Networks and Deep Learning	Dept. of CSE and UGC MHRD, JU	23- 24 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	Refresher course on Data Science and its Applications Topic: Image Processing with Machine Learning	UGC HRDC and Department of Computer Science,	22 February -6 March, 2021

**Annual Report 2020-2021**

			Jadavpur University	
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Outcome-Based Education	NIT Mizoram	1-5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Designing Course Outcomes(COs)	NIT Mizoram	1- 5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Various Mappings with reference to NBA	NIT Mizoram	1-5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Direct and Indirect Attainment Calculation	NIT Mizoram	1-5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	National Workshop on Enhancing Digital Skills among the Youths of North Eastern States: Towards a Digital India Topic: AI Basics	Rajiv Gandhi National Institute of Youth Development, Sriperumbudur	24-26 November, 2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Joy Dutta (PhD Scholar)</b>	Indoor Air Pollution Prediction using Time Series Forecasting Models	2nd International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020)	Virtual, Institute of Engineering and Management (IEM)	2-4 July, 2020
<b>Baidik Chandra (UG Student)</b>	Spatio-temporal Prediction of Noise Pollution using Participatory Sensing	2nd International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020)	Virtual, Institute of Engineering and Management (IEM)	2-4 July, 2020
<b>Showmik Bhowmik (PhD Scholar)</b>	Classification of Text regions in a Document Image by Analyzing the properties of Connected Components	2020 IEEE Applied Signal Processing Conference (ASPCON)	Virtual mode, Jadavpur University	7-9 October, 2020
<b>Shib Sankar Sarkar (PhD Scholar)</b>	Classification of Microstructural Image using a Transfer Learning Approach,	2nd International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020)	Virtual mode, Institute of Engineering and	2-4 July, 2020

### Annual Report 2020-2021

			Management , Kolkata	
<b>Anuran Chakraborty (UG Student)</b>	Handwritten Digit String Recognition using Deep Autoencoder based Segmentation and ResNet based Recognition Approach	25 <sup>th</sup> International Conference on Pattern Recognition, ICPR-2020	Virtual Mode, Milan, Italy.	10-15 January, 2021
<b>Jaya Paul (PhD student)</b>	A Survey on Feature Extraction Methods For Handwriting Biometric	Third International Conference on Computational Intelligence in Communications and Business Analytics (CICBA 2021)	Virtual mode, Calcutta Business School, Kolkata and Kalyani Government Engineering College, Kalyani	7-8 January, 2021
<b>Debapriya banik (PhD Scholar)</b>	Exploring Hand-Crafted Features and Transfer Learning for Polyp Segmentation	International Conference on Computational Intelligence in Communications and Business Analytics	Santiniketan, India	7-8 January, 2021
<b>Rajdeep Bhattacharya (UG Student)</b>	Form Processing to Scene Text Detection - Some Image Processing Applications	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26 February, 2021 (2:00 PM-2:15 PM)
<b>Shuvayan Ghosh Dastidar (UG Student)</b>	A Camera Based Document Image Recognition System	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26 February, 2021 (2:15 PM - 2:30 PM)
<b>Avishek Garain (UG Student)</b>	Word Difficulty Prediction Using Convolutional Neural Networks	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26 February, 2021 (2:30 PM - 2:45 PM)
<b>Subhabrata Dutta (UG Student)</b>	Text Analytics and its Applications	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26 February, 2021 (2:45 PM - 3:00 PM)

### Annual Report 2020-2021

<b>Saswat Singh and Sajan Rajak (UG Student)</b>	Time Series Analysis of COVID-19 Data	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26 February, 2021 (3:00 PM - 3:15 PM)
<b>Abhishek Dey</b>	Band Elimination for Dimensionality Reduction of Hyperspectral Images Using Mutual Information	2020 IEEE International Geoscience and Remote Sensing Symposium, IEEE IGARSS	Virtual	Date: 1 October, 2020 14.40-14.50 (UTC)

#### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
Debapriya Banik (PhD Scholar)	Online Workshop on Accelerated Data Science	NSM Nodal centre, IIT kharagpur, Nvidia	21-22 February, 2021
Soumyajyoti Dey (PhD Scholar)	International Online Workshop on New Trends in Fuzzy and Rough Set Theory and its Applications	Manipal University, Jaipur	25-29 September, 2020
Koushik Dutta (PhD Scholar)	Five Days Faculty Development Program on AI & It's Applications (Covid-19 Data Visualization & Analysis, Forecasting, Prediction & Face Recognition using Open CV)	EduxLabs (Esair Business Solution LLP)	11-15 May, 2020
Hiranmoy Roy (PhD Scholar)	Two weeks online Faculty Development Program on "Python Programming"	Electronics and ICT Academia, MeitY, Govt. of India	7-18 September, 2020
Hiranmoy Roy (PhD Scholar)	One week online Training Programme on 'ARTIFICIAL INTELLIGENCE & DEEP LEARNING'	Electronics and ICT Academy, PDPM Indian Institute of Information Technology, Design and Manufacturing Jabalpur	12-17 July, 2020
Hiranmoy Roy (PhD Scholar)	One week Faculty Development Programme on Image Authentication, WSN & IoT	Department of CSE, JIS College of Engineering, West Bengal in association with CSI Kolkata Chapter	22-26 June, 2020
Hiranmoy Roy (PhD Scholar)	One Week Online Faculty Development Program on "Recent Research Challenges in Computer Science and Applications (RRCCSA)"	Department of Computer Science and Engineering, RCC Institute of Information Technology, Kolkata	23- 26th November and 28 November, 2020



### Annual Report 2020-2021

Hiranmoy Roy (PhD Scholar)	Two week (equivalent to 3 credit 40 hours course) online faculty development programme on “Advanced Optimization Techniques and hands-on with MATLAB/SCILAB”	Electronics and ICT Academia, MeitY, Govt. of India	13-24 July, 2020
Hiranmoy Roy (PhD Scholar)	Two weeks online Faculty Development Programme on “Machine Learning for Computer Vision”	Electronics and ICT Academia, MeitY, Govt. of India	29 June- 8 July, 2020
Hiranmoy Roy (PhD Scholar)	Five Days Faculty Development Program on “Deep Learning For Medical Data Analysis , Visualization & Predictions”	EduxLabs (Esair Business Solution LLP)	1June to 5 June, 2020
Hiranmoy Roy (PhD Scholar)	5 Days Instructor Led Live Online Faculty Development Program On Artificial Intelligence & Machine Learning Using Python	Finland labs	25- 29 May, 2020
Hiranmoy Roy (PhD Scholar)	Five Days Faculty Development Program on AI & Its Applications (Covid-19 Data Visualization & Analysis, Forecasting, Prediction & Face Recognition using Open CV)	EduxLabs (Esair Business Solution LLP)	11-15th May, 2020
Hiranmoy Roy (PhD Scholar)	Two weeks course on “Digital Transformation on Teaching Learning Process”	IIT Bombay TEQIP-3	6-22 April, 2020
Parama Bagchi (PhD Scholar)	One week FDP on Image Authentication, WSN and IoT	JIS College of Engineering	22-26 June, 2020
Parama Bagchi (PhD Scholar)	On-line Summer School cum FDP on Advances in Signal Processing and Machine Learning organized by from	MHRD Institution Innovation Council Deen Dayal Upadhyaya College, University of Delhi and National Academy of Sciences India Delhi chapter	20- 26 July, 2020
Parama Bagchi (PhD Scholar)	Online one week FDP on Data Sciences	AICTE and Learning Academy	28 September- 2 October, 2020
Parama Bagchi (PhD Scholar)	One week FDP on Recent Research Challenges in Computer Science and Applications	CSE Dept, RCCIIT	23- 26 November, 2020
Namita Jain (PhD Scholar)	APNNS Education Forum Series: Deep Learning and Artificial Intelligence Winter School (DLAI4), organized by KMUTT, Thailand	Virtual	18-22 November, 2020

### Annual Report 2020-2021

Debayan Goswami (PhD Scholar)	APNNS Education Forum Series: Deep Learning and Artificial Intelligence Winter School (DLAI4), organized by KMUTT, Thailand	Virtual	18-22 November, 2020
Arnab Banerjee (PhD Scholar)	Selected Topics on Research Methodology	Department of Computer Science Engineering, Aliah University	4 September, 2020
Arnab Banerjee (PhD Scholar)	Quality Education Through OBE (Sponsored by AICTE)	Bardhaman College of Engineering, Hyderabad	13-17 July, 2020
Arnab Banerjee (PhD Scholar)	Joint Online Faculty Development Programme “Data Science for All”- (Supported by Ministry of Electronics and Information Technology, MeitY, Govt. of India.)	Jointly Organized By E & ICT Academy, NIT Patna	27 July-7th August, 2020
Arnab Banerjee (PhD Scholar)	Data Science for Societal Development	AICTE Training And Learning (ATAL) Academy	16-20 September, 2020
Arnab Banerjee (PhD Scholar)	Deep Learning for Visual Computing and Communication (Sponsored by Electronics and ICT academy at National Institute of Technology Patna)	Department of Electronics & Communication Engineering, National Institute of Technology Silchar.	15 – 21 October, 2020

**6. Major Achievements of the Department during the year:**

**C. Awards received by Research Scholars/Students:**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place	Batch (in AY20-21)
Soumyajyoti Dey	Winner in IEEE Xplore Challenge for Researchers in India	IEEE	Virtual (Nov 2020)	Research Scholar
Pritthijit Nath	MITACS - Globalink Research Internship	University of Waterloo	Canada	BCSE-UG-III
Pritthijit Nath	Indian Academy of Sciences - Summer Research Fellowship	ISI Kolkata	Kolkata	BCSE-UG-III
Pritthijit Nath	IEEE CS Richard E. Merwin Scholarship - Spring 2021	IEEE Computer Society		BCSE-UG-III
Rajarshi Roychowdhury	MITACS - Globalink Research Internship	University of British Columbia	Canada	BCSE-UG-III
Bisakh Mondol	Google Summer of Code	Chromium		BCSE-UG-III
Pratik Dey	Google Summer of Code	AboutCode		BCSE-UG-III

## Annual Report 2020-2021

Urwah Jawaid	PMSSS	AICTE	Jammu & Kashmir	BCSE-UG-I
Sheikh Suhail	PMSSS	AICTE	Jammu & Kashmir	BCSE-UG-I
Siddharth Singh	JBNSTS Senior Scholar	JBNSTS	Kolkata	BCSE-UG-I
Prithwish Jana	University Gold Medal (Due) for being Dept. Topper in 2020	Jadavpur University	Kolkata	BCSE-UG-IV
Prithwish Jana	Reliance Foundation Scholarship for AI & CS -- Graduate Scholar	Reliance Foundation	Kharagpur	BCSE-UG-IV
Rohit Rajat Chattopadhyay	NQS	Carnegie Mellon University		BCSE-UG-IV

### D. Any Other Major Achievements:

Ujjwal Maulik is elected as Fellow of IEEE

Ujjwal Maulik is awarded as Distinguish Speaker ACM

Subhadip Basu is an Honorary Research Scientist of University of Iowa, USA

### 7. Extension Activities of the Department during the year:

#### B. Activities for the Society:

1. Susmita Ghosh, Chair, IEEE Geoscience and Remote Sensing Society, From January 2021.
2. Susmita Ghosh, Vice-Chair, IEEE Geoscience and Remote Sensing Society, From January 2019 - December 2020.
3. Subhadip Basu, Chair, Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2021
4. Sarbani Roy, Vice- Chair, Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2021
5. Ram Sarkar, Secretary, Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2020
6. Nibaran Das, Treasurer Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2020
7. Ram Sarkar, Treasurer, Computer Chapter, IEEE Kolkata Section, From January 2020 - December 2021
8. Nibaran Das, Secretary, Computer Chapter, IEEE Kolkata Section, From January 2020 - December 2021
9. Chintan Kumar Mandal, Chair, Young Professionals, IEEE Kolkata Section, From January 2020 - December 2021
10. Chandreyee Chowdhury, Vice-chair, Young Professionals, IEEE Kolkata Section, From January 2020 - December 2021
11. Ram Sarkar, Program Officer, NSS, April 2020 - March 2021.

### 8. Students Progression during the year:

#### A. Progression to Higher Studies

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
5	BCSE	PhD, MS/M.Tech/MBA,	Michigan State University, Virginia Tech, IIT-Kgp, IIM-L, IIM-B

## Annual Report 2020-2021

### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	2
SET	1
GATE	15
CAT	3
GRE	8
TOFEL	8

## CONSTRUCTION ENGINEERING

[Salt Lake Campus]

Phone: 033-2340-6122

H.O.D : Dr.Gokul Ch. Mondal

E-mail: [hodconstruction@jadavpuruniversity.in](mailto:hodconstruction@jadavpuruniversity.in)

### 1. Vision and Mission of the Department:

#### A. Vision:

- To ensure quality education towards development of Engineering skills to cater the prevalent and emerging needs of Construction Industry.

#### B. Mission:

- To develop engineering skills comparable to international standards.
- To address the relevant societal and industrial requirements.
- To motivate students in research, co-curricular and extracurricular activities.
- To promote innovation and integration of institutional collaborations.
- To promote stronger linkage between industry and institute.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Bachelor of Construction Engineering	(4 years)	1 <sup>st</sup> year	39
		2 <sup>nd</sup> year ...	

### Annual Report 2020-2021

Master of Construction Engineering in Structural Repair & Retrofit Engg.	(3 years)		18
--	-----------	--	----

#### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
Prof. Subhajit Saraswat Prof. P. P. Biswas Prof. D. Bandyopadhyay Prof.K.Bandyopadhyay Dr. Partha Ghosh Dr.Gokul Chandra Mandal	Sri Manoj Kumar Sahis	Dr. Dipesh Majumdar Sri. Sayan Nandi	7 (Seven)

#### 4. Research Activities:

##### A. Areas of Research Activities: (Broad Areas)

**Structural Health Monitoring** from Static & Dynamic Response.

**Earthquake Engineering** & Disaster Mitigation of Structures.

**Repair and Retrofit** of Corroded RCC Structures

Experimental **Fatigue** Investigation of RCC structures

Highway Engineering, Soil mechanics and Foundation engineering, Concrete Technology, Structural repair and retrofit Engineering.

##### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Characterization of subgrade resilient modulus with variable moisture and index properties of soil in West Bengal to access pavement failure	Individual	Biswas, P.P	RUSA	1 Year

##### C. Doctoral Research Activities

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
4	3

**Annual Report 2020-2021**

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

**(Name of authors, Title of the article, Name of the Journal, Volume No.,Page No/Article No., Year of publication)**

<b>Sl No</b>	<b>(Name of authors</b>	<b>Title of the article</b>	<b>Name of the Journal</b>	<b>Volume No., Page No./ Article No.</b>	<b>Year of publication</b>
1.	Bappaditya Koley, Anindita Nath, Subhajit Saraswati & Bidhan Chandra Roy	Assessment of 2016 Mantam Landslide at Mangan, North Sikkim Himalayas using Geospatial Technique	Journal of Scientific Research	Vol. 64, Issue: 2 ,	2020
2.	Anindita Nath, Bappaditya Koley, Subhajit Saraswati & Bidhan Chandra Roy	Identification of the coastal hazard zone between the areas of Rasulpur and Subarnarekha estuary, east coast of India using multi-criteria evaluation method	Modeling Earth Systems and Environment	Vol. 7, Issue: 4,	2020
3	Anindita Nath, Bappaditya Koley, Subhajit Saraswati, Basudeb Bhatta & Bidhan Chandra Roy	Shoreline change and its impact on land use pattern and vice versa- A critical analysis in and around Digha area between 2000 and 2018 using geospatial technique	Patranika Journal of Science and Technology	Vol. 29, Issue: 1	2021
4	Ashis Kumar Dutta, Jagat Jyoti Mandal, <b>Debasish Bandyopadhyay</b>	Analysis of Beams on Pasternak Foundation Using Quintic Displacement Functions	Geotechnical and Geological Engineering,	39, pp 4213-4224	2021
5	Ashis Kumar Dutta, <b>Debasish Bandyopadhyay</b> , Jagat Jyoti Mandal	Response Analysis of Second-Order Continuity Rectangular Plate Bending Element Resting on Elastic Foundation Using Modified Vlasov Model	International Journal of Pavement Research and Technology		2021
6	Ashis Kumar Dutta, <b>Debasish</b>	Free Vibration Analysis of Second-	International Journal of		2021

**Annual Report 2020-2021**

	<b>Bandyopadhyay, Jagat Jyoti Mandal</b>	Order Continuity Plate Element Resting on Pasternak Type Foundation Using Finite Element Method	Pavement Research and Technology		
7	Jafar Ali, Debasish Bandyopadhyay	Experimental validation of the proposed technique for condition monitoring of structure using limited noisy modal data	International Journal of Structural Integrity	Volume -11, No.1, pp 45-59, ISSN: 1757-9864	2020
8	Jafar Ali, Debasish Bandyopadhyay	Condition Monitoring of Structures using Limited Noisy Data of Modal Slope and Curvature of Mode Shapes	International Journal of Structural Integrity	Volume -11, No.1, pp 71-81, ISSN: 1757-9864	2020
9	Purakayastha, Sujata & Biswas, Partha & Sahis, Manoj	Determination of bituminous overlay thickness of flexible pavement by mechanistic-empirical approach based on concentration factor	International Journal of Pavement Research and Technology	13.10.1007/s42947-020-0166-1	2020
10	Purakayastha, S., Biswas, P.P. & Sahis, M.K.	Determination of bituminous overlay thickness of flexible pavement by mechanistic-empirical approach based on concentration factor.	Int. J. Pavement Res. Technol.	13, 222–227 <a href="https://doi.org/10.1007/s42947-020-0166-1">https://doi.org/10.1007/s42947-020-0166-1</a>	2020
11	Sahis, Manoj & Biswas, Partha	Optimization of Bituminous Pavement Thickness using Mechanistic-Empirical Strain-Based Design Approach	Civil Engineering Journal	7. 804-815. 10.28991/cej-2021-03091691	2021
12	Sahis, Manoj & Biswas, Partha & Saha, Geetam	Mechanistic-Empirical Design of Overlay Based on Vertical Interface	Jordan Journal of Civil Engineering	15. 2021.	2021

**Annual Report 2020-2021**

		Stress and Curvature Index of Deflection Basin.			
13	Biswas, Partha	Skewed Urbanization and the Contagion	Economic and Political Weekly	Vol. 55, Issue No. 16, 18 Apr, 2020 (/journal/2020/16), Updated on 20 April 2020	2020

**E. Research Articles Published in Edited Volumes during the year:  
(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)**

Name of authors	Title of the article	Title of the Book, (Vol.no.)	Name of the Editors (eds.)	pg. no.	Name of the Publisher	ISBN/ISSN No.	Year
Anindita Nath, Bappaditya Koley, Subhajit Saraswati, Kaushik Bandyopadhyay & Bidhan Chandra Roy	Erosion Hotspots and the Drivers of Erosion Along the Part of West Bengal Coast, India”	Problematic Soils and Geoenvironmental Concerns (Proceedings of IGC 2018)	MadhaviL ataGali& P. Raghuvveer Rao	169 to 182	Springer, Singapore	978-981-15-6236-5	2020-2021
Chandrima Goswami, Kaushik Bandyopadhyay, Arunava Majumder	SpirodelaPolyrhiza: An Efficient Hyperaccumulator of Nickel at Low Concentration	Sustainable Environmental Geotechnics (Proceedings of EGRWSE 2019)	Krishna Reddy & G L S Babu		Springer, ham	978-3-030-51349-8	
Ashis Kumar Dutta, Debasish Bandyopadhyay, Jagat Jyoti Mandal	Static Analysis of Thin Rectangular Plate Resting on Pasternak Foundation	Lecture Notes in Civil Engineering book series (LNCE, volume 159) Transportation, Water and Environmental Geotechnics	Satyanarayana Reddy C.N.V., Saride S., Haldar S.,	50-58	Springer, Singapore	978-981-16-2259-5,	2020
Sahis, Manoj & Bhattacharya, G. & Chowdhury, Robin	Reliability analysis of rainfall induced slope instability of unsaturated soil slopes					0.1201/9781003070580-52.	2020
Biswas, Partha & Sahis, Manoj & Sengupta, Agnimitra	Determination of Compacted Dense Sand Layer Thickness on Loose Sand					10.1007/978-981-15-6090-3_44	2020



### Annual Report 2020-2021

	Using Odemark's Method for Design of Shallow Foundation						
P. P. Biswas, S. Purakayastha, M. K. Sahis, and G. C. Mondal	Characterization of layer index in bituminous pavement using mechanistic empirical approach based on concentration factor in a layered system				International Symposium on Bituminous Materials Dec-14-20, Lyon, France	ISBM Lyon 2020	2020
Biswas, P.P., Sahis, M.K., Sengupta, A.	Determination of Compacted Subgrade Thickness on Weak Subgrade Using Odemark's Method Based on Mechanistic-Empirical Design Approach	Lecture Notes in Civil Engineering		79-87		137 LNCE,	2021
Manoj Kumar Sahis, Partha Pratim Biswas	Optimization of Bituminous Pavement thickness using Mechanistic-Empirical Strain-Based Design Approach	(Vol 7, No 5)		804-815	Civil Engineering Journal	Doi: 10.28991/cej-2021-03091691	2021
Manoj Kumar Sahis, Partha Pratim Biswas and Geetam Saha	Mechanistic-Empirical Design of Overlay based on Vertical Interface Stress and Curvature Index of Deflection Basin	(Volume 15, No.3)		474-488	Jordan Journal of Civil Engineering		2021

**Annual Report 2020-2021**

**F. Research Articles Published in Conference Proceedings during the year:  
(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**

<b>Name of authors</b>	<b>Title of the Paper</b>	<b>Title of the Proceedings</b>	<b>page no.</b>	<b>Name of the Publisher</b>	<b>ISSN/ISS N No.</b>	<b>Year</b>
Dipesh Majumdar, Geetam Saha, Srikanth Narasimalu	A Novel Design for Fixed Type Oscillating Water Column Wave Energy Convertor for Indian Scenario		2121-1 to10	European Wave and Tidal Energy Conference Plymouth, UK	ISSN 2309-1983	2021
Devjit Acharjee, Dhruba Sing, Debasish Bandyopadhyay	Numerical Study on Effect of Seismic Load on The Stability of Tilted RCC Building	Proceedings of First National Conference on Sustainable Innovative Trends in Civil Engineering (SITCE 2021).	167-173		ISBN: 978-81-9270-510-1	2021
Devjit Acharjee, Dibya Jyoti Basu, Dhruba Sing, Debasish Bandyopadhyay	Stability Assessment of Tilted G+4 RCC Buildings Located at Different Seismic Zones: A Parametric Study	International Conference on Sustainable Environment & Civil Engineering (ICSECE'21	76		ISBN: 978-93-5351-791-5	2021
Ashis Kumar Dutta, Debasish Bandyopadhyay, Jagat Jyoti Mandal	Analysis of Grid Type Structure on Elastic Foundation	Proceedings of the First International Conference on Recent Advancements in Civil Engineering (ICRACE) 2021 Held on 17th to 19th September 2021 NIT				2021

### Annual Report 2020-2021

		Silchar, India.				
Devjit Acharjee, Debasish Bandyopadhyay	Effect Of Soil- Structure Interaction On The Stability of Tilted RCC Buildings: A Parametric Study	Proceedings of National Conference on Innovations & Recent Trends in Civil Engineering (NCIRCE)	171- 181			2021

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Recent Developments in Concrete and Assessment of RCC Structures under TEEQIP-III Twinning Activity Program	1. <b>Prof. Debasish Bandyopadhyay</b> , JU 2. Prof. Praveen Kumar, RTU	Recent Developments in Concrete and Assessment of RCC Structures	Online 6-8 July, 2020	

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Debasish Bandyopadhyay</b>	Invited Lecture	The Challenges to Mitigate Corrosion in Concrete	Medinipur	20.02.21
<b>Prof. Debasish Bandyopadhyay</b>	Invited Lecture	Quality Construction for Durability of Structures	Kharagpur	20.08.20
<b>Prof. Debasish Bandyopadhyay</b>	Invited Lecture	Disaster Mitigation Engineering against Earthquake & Cyclone in the context of Amphan	India (Webinar)	19.06.20
<b>Prof. Debasish Bandyopadhyay</b>	Invited Lecture	Reinforce Detailing of Concrete building Structures	India (Webinar)	28.04.20
<b>Prof. Debasish Bandyopadhyay</b>	Invited Lecture	Seismic Evaluation and Retrofit of Structures for Disaster Mitigation	India (Webinar)	

**Annual Report 2020-2021**

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
Dr. Dipesh Majumdar	An overview study of Ocean Energy Potential and Technologies in India	34 <sup>th</sup> Indian Engineering Congress	Online	18.12.2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>M. K. Sahis</b>	Short term Course...MOOC's	Department of Library and Information science, Jadavpur university, Kolkata and ASC jadavpur university, Kolkata	23.02.2021 to 01.03.2021 (one week).

**8. Students Progression during the year:**

**B. Qualifying in State/ National/ International Level Examinations:**

<b>Name of the Examination</b>	<b>No. of students selected/ qualified</b>
GATE	3

## Annual Report 2020-2021

### ELECTRICAL ENGINEERING

Phone: 033-2457-2539/2296

033-2414-6163

H.O.D : Prof. Keshab Bhattacharya

Prof. Saswati Mazumdar (sonce 1.3.2021)

E-mail: hodelectrical@jadavpuruniversity.in

#### 1. Courses Offered:

Sl. No.	Name of the course	Duration of the course
1.	B.E.E.	4 Yrs.
2.	B. E. E. (Evening)	5 Yrs.
3.	M. E. E.	2 Yrs.
4.	M. C. S. E.	2 Yrs.
5.	M.E. Illumination Engg.	2 Yrs.
6.	Ph.D.	

### CONTROL SYSTEM SECTION

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

- Control and Guidance
- Modeling and Simulation
- Robust Control
- Tracking and Estimation
- Nonlinear Control Systems
- Mobile Communication
- Swarm Robotics
- Mechatronic Design of Robotic Systems
- Robust and Nonlinear Control of Mechatronic Systems
- Digital Control Systems
- Periodic Control
- Multi-rate Control

## Annual Report 2020-2021

### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Robustness Analysis of AFAFEC Control Laws covering redundancy management	Individual	<b>Prof Smita Sadhu</b>	GTRE, DRDO, Ministry of Defence	Initially 2 years (extended)
Development and validation of algorithm for estimation and tracking of high velocity maneuvering targets	Individual	<b>Prof Smita Sadhu</b>	Program 'AD', DRDO, Ministry of Defence	2 years
Design, Development and Control of a Light Weight Anthropomorphic Robot Arm by Morphological Computation	Individual	<b>Ranjit Kumar Barai</b>	SERB (DST)	August 2018 – August 2021

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

1. D. Roy, M. Maitra and S. Bhattacharya, "Adaptive formation-switching of a multi-robot system in an unknown occluded environment using BAT algorithm", International Journal of Intelligent Robotics and Applications (IJIRA), vol. 4 (4), pp. 465-489, 2020. (<https://link.springer.com/article/10.1007/s41315-020-00150-3>); Impact Factor: 1.92.
2. D. Roy, A. Chowdhury, M. Maitra and S. Bhattacharya, "Geometric Region-Based Swarm Robotics Path Planning in an Unknown Occluded Environment", IEEE Transactions on Industrial Electronics vol. 68 (7), pp. 6053-6063, 2020 (Date of Publication: 27 May, 2020, DOI: [10.1109/TIE.2020.2996158](https://doi.org/10.1109/TIE.2020.2996158)); Impact Factor: 8.236.

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. S. Dasgupta and S. Sadhu, "A Modified Active Anti-Disturbance Control for Time Delay System," *Michael Faraday IET International Summit 2020 (MFIS 2020)*, 2020, pp. 94-99, doi: 10.1049/icp.2021.1145.
2. S. Dasgupta and S. Sadhu, "Decoupling Controller Design for a Multivariable Time Delay System", *2020 IEEE 1st International Conference for Convergence in Engineering (ICCE)*, 2020, pp. 189-194, doi: 10.1109/ICCE50343.2020.9290724.
3. Ankita Muhury, S. Sadhu and T.K. Ghoshal, "Guidance Signal Extraction in an ESA Based RF Seeker by Disturbance Observer", 2<sup>nd</sup> IEEE International Conference on Range Technology (IEEE ICORT 2021), 2021.
4. Tasmita Saha, Nirmal Murmu, Sayantan Chakroborty, Madhubanti Maitra, "Stabilization of Cart Inverted Pendulum System by 2-Rate Controllers based on PSO Technique", 2020 IEEE Applied Signal Processing Conference (ASPCON), 2020.

## Annual Report 2020-2021

### HIGH VOLTAGE SECTION

#### 4. Research Activities:

##### A. Areas of Research Activities: (Broad Areas)

Condition monitoring of power equipment, Numerical field computation and Optimization of insulation system, Power quality event detection, condition monitoring and signal conditioning in high voltage systems including partial discharge diagnostics and space charge investigations.

##### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Development of a Non-invasive Insulation Diagnostic System for Large Power Equipment employing Cellulose Impregnated with Alternate Dielectric Liquid as its Primary Insulation taking into consideration the Influence of Trapped Charge present in the System	Individual	Dr. Arijit Baral – PI Co-Investigator – Prof. Sivaji Chakravorti	DST-SERB	2019-2022
Condition Assessment of High Voltage Insulation in Dry type Equipment using Modified Dielectric Response Analysis	Individual	PI-Prof. Biswendu Chatterjee	DST-SERB	2017-2020

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

1. B. Ganguly, S. Chowdhury, S. Biswas, D. Dey, S. Munshi, B. Chatterjee, S. Dalai and S. Chakravorti, "Wavelet Kernel based Convolutional Neural Network for Localization of Partial Discharge Sources within a Power Apparatus", IEEE Trans. on Industrial Informatics, Vol. 17, No.3, pp 1831-1841, 2021.
2. D. Mishra, R. Verma, A. Baral and S. Chakravorti, "Investigation Related to Performance Parameter Estimation of Power Transformer Insulation Using Interfacial Charge", IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 27, No.4, pp 1247-1255, 2020.
3. C.M. Banerjee, A. Baral and S. Chakravorti, "De-Trapped Charge Affected Depolarization Current Estimation using Short-Duration Dielectric Response for Diagnosis of Transformer Insulation", IEEE Trans. on Instrumentation and Measurement, Vol. 69, No. 10, pp 7695-7702, 2020.
4. D. Mishra, A. Baral, N. Haque and S. Chakravorti, "Condition Assessment of Power Transformer Insulation Using Short Duration Time Domain Dielectric Spectroscopy Measurement Data", IEEE Trans. on Instrumentation and Measurement, Vol. 69, No. 7, pp 4404-4411, 2020.
5. S. Dutta, D. Mishra, A. Baral and S. Chakravorti, "Estimation of de-trapped charge for diagnosis of transformer insulation using short-duration polarisation current employing detrended fluctuation analysis", High Voltage, IET, Vol. 5, No. 5, pp 636-641, 2020.

## Annual Report 2020-2021

6. N.Mondal, N.Haque, S.Dalai, S.Chakravorti and B.Chatterjee, "A Method for Identifying Ageing in Epoxy-mica Composite Insulation used in Rotational machines through Modelling of Dielectric Relaxation", *High Voltage, IET*, Vol. 5, No. 2, pp 184-190, 2020.
7. D. Mishra, A.Baral and S. Chakravorti, "De-noising of Time Domain Spectroscopy Data for Reliable Assessment of Power Transformer Insulation", *IET Generation, Transmission & Distribution*, Vol. 14, No. 8, pp 1500-1507, 2020.
8. C. M. Banerjee, A. Baral and S.Chakravorti, "Effective Analysis of Time Domain Dielectric Response for Reliable Diagnosis of Power Transformer Insulation using Statistical Parameter Evaluated from Time-Varying Model", *IET Science, Measurement & Technology*, Vol. 14, No. 1, pp 48-55, 2020.
9. B. Chakraborty, K.Y.Raj, A. K. Pradhan, B. Chatterjee, S. Chakravorti and S. Dalai, "Investigation of Dielectric Properties of TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> Nanofluids by Frequency Domain Spectroscopy at Different Temperatures", *Journal of Molecular Liquids*, Vol. 330, May, Article 115642, 2021.
10. R. Panickar, C.B.Sobhan and S.Chakravorti, "Improved Tribological Behavior of Lubricating oil Dispersed with Hybrid Nanoparticles of Functionalized Carbon Spheres and Graphene Nano Platelets", *Applied Surface Science (Elsevier)*, Volume 540, Part 2, February, Article 148402, 2021.
11. R. Panickar, C. B.Sobhan and S.Chakravorti, "Investigations on Tribological Properties of Non-Catalytic CVD Synthesised Carbon Spheres in Lubricant", *Diamond & Related Materials (Elsevier)*, Vol. 106, June, Article 107834, 2020.
12. R. Panickar, C.B.Sobhan and S.Chakravorti, "Chemical Vapor Deposition Synthesis of Carbon Spheres: Effects of Temperature and Hydrogen", *Vacuum (Elsevier)*, Vol. 172, Feb, Article 109108, 2020.
13. A. K. Das and S. Dalai, "Recent development in condition monitoring methodologies of MOSA employing leakage current signal: A Review," *IEEE Sensors Journal* (in press), doi: 10.1109/JSEN.2021.3073536.
14. K. Nandi, A. K. Das, R. Ghosh, S. Dalai and B. Chatterjee, "Hyperbolic window S-transform aided Deep Neural Network model-based Power Quality monitoring framework in Electrical Power System," *IEEE Sensors Journal* (in press), doi: 10.1109/JSEN.2021.3071935.
15. S. Maur, S. Chatterjee, N. Haque, P. P., S. Dalai and B. Chatterjee, "Sensing the Thermal Aging of Epoxy Alumina Nano-Composites Using Electric Modulus", *IEEE Sensors Journal*, Volume: 21, Issue: 10, pp. 12236-12244, 2021, doi: 10.1109/JSEN.2021.3065447.
16. K. Sit, A. K. Das, D. Mukherjee, N. Haque, S. Deb, A. K. Pradhan, S. Dalai and B. Chatterjee, "Condition Monitoring of Overhead Polymeric Insulators Employing Hyperbolic Window Stockwell Transform of Surface Leakage Current Signals", *IEEE Sensors Journal*, Volume: 21, Issue: 9, pp. 10957-10964, 1 May, 2021, doi: 10.1109/JSEN.2021.3061797.
17. A.K. Das, S. Dalai, B. Chatterjee, "Deep learning-based surface contamination severity prediction of metal oxide surge arrester in power system." *IET Science, Measurement & Technology* (In Press), 2021, DOI: <https://doi.org/10.1049/smt2.12039>
18. N. Haque, S. Dalai, B. Chatterjee, S. Chakravorti, "Ageing of DC conduction in thermally aged oil-impregnated pressboard." *IET Science, Measurement & Technology*, Volume: 15, Issue: 2, pp. 232–240, 2021.
19. A. K. Das, N. Haque, A. K. Pradhan, S. Dalai, B. Chatterjee and A. Mukherjee, "Estimation of Moisture Content in XLPE Insulation in Medium Voltage Cable by Frequency Domain Spectroscopy," *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 27, no. 6, pp. 1811-1819, December 2020, doi: 10.1109/TDEI.2020.008789.
20. S. Maur, N. Haque, P. Pottekat, B. Chakraborty, S. Dalai and B. Chatterjee, "Investigations on the effect of ageing on charge de-trapping processes of epoxy-alumina nanocomposites based on isothermal relaxation current measurements", *IET Nanodielectrics*, vol. 3, no. 4, pp. 116-123, Dec. 2020.
21. S. Chatterjee, N. Haque, A. K. Pradhan, S. Dalai and B. Chatterjee, "Estimation of Conductivity at Reduced Time for Sensing Moisture Content of Oil-Paper Insulation," *IEEE Sensors Journal*, vol. 20, no. 21, pp. 12999-13006, 1 Nov.1, 2020, doi: 10.1109/JSEN.2020.3003134.



## Annual Report 2020-2021

22. A. K. Das, B. Ghosh, S. Dalai and B. Chatterjee, "Sensing Surface Contamination of Metal Oxide Surge Arrester Through Resistive Leakage Current Signal Analysis by Mathematical Morphology," IEEE Sensors Journal, vol. 20, no. 16, pp. 9460-9468, 2020.

**F. Research Articles Published in Conference Proceedings during the year:  
(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**

1. S. Mishra, A. Baral and S. Chakravorti, "Assessing the condition of Nomex paper-based Insulation in Open Wound and VPI type Dry-type Transformer using Frequency Domain Spectroscopy Data", International Conference for Emerging Technology (INCET), pp. 1-5, 2020.
2. N. Mondal, S. Chatterjee, N. Haque, S. Dalai, B. Chatterjee and S. Chakravorti, "Condition Monitoring of Epoxy Mica Composite Insulation Used in Rotating Machines Employing Electric Modulus," Proc. of 2021 1st International Conference on Power Electronics and Energy (ICPEE), Bhubaneswar, India, pp. 1-4, doi: 10.1109/ICPEE50452.2021.9358655, 2021.
3. S. Maur, S. Dalai and B. Chatterjee, "Studies on Ageing Status of Epoxy Nano-Composites for Dry-Type Insulation using Electric Modulus", Proc. of 2020 IEEE Applied Signal Processing Conference (ASPCON), Kolkata, India, pp. 354-358, doi: 10.1109/ASPCON49795.2020.9276716, 2020.
4. B. Chakraborty, A. Mondal, S. Maur, B. Chatterjee and S. Dalai, "Investigation on Activation Energy and Temperature Conductivity Dependency of Laboratory prepared Mixed Insulation Samples", Proc. of 2020 IEEE International Conference for Convergence in Engineering (ICCE), Kolkata, India, pp. 205-209, doi: 10.1109/ICCE50343.2020.9290625, 2020.
5. S. Maur, B. Chakraborty, S. Dalai and B. Chatterjee, "Investigation on Effects of Thermal Ageing on LDPE Based on Polarization and Depolarization Currents", Proc. of 2020 IEEE International Conference for Convergence in Engineering (ICCE), Kolkata, India, pp. 200-204, doi: 10.1109/ICCE50343.2020.9290689, 2020.
6. S. K. Paul, S. Biswas, T. Nag and S. Dalai, "Investigation of the Insulation Condition of Contaminated Solid Epoxy Insulators", Proc. 2020 IEEE International Conference for Convergence in Engineering (ICCE), Kolkata, India, pp. 165-169, doi: 10.1109/ICCE50343.2020.9290621, 2020,
7. K. Sit, A. Chakraborty, S. Dalai, B. Chatterjee and A. K. Pradhan, "Mathematical Morphology aided Random Forest Classifier based High Voltage Porcelain Insulator Contamination level Classification", Proc. of 2020 IEEE Region 10 Symposium (TENSYP), Dhaka, Bangladesh, pp. 98-10, 2020.
8. A. K. Das, S. Dalai, B. Chatterjee, "Cross Stockwell Transform aided Random Forest based Surface Condition Identification of Metal Oxide Surge Arrester Employing Leakage Current Signal", Proc. of 2020 IEEE Region 10 Symposium (TENSYP), Dhaka, Bangladesh, pp. 1775-1778, 2020.
9. A. K. Das, S. Dalai, B. Chatterjee, "An experimental study to investigate the condition of Metal Oxide Surge Arrester (MOA) under polluted environment", Proc of 2020 IEEE International Conference for Convergence in Engineering (ICCE), Kolkata, India, pp. 175-179, 2020.

**G. Patents Granted/ Published/ Filed during the year:**

Name of the Inventors	Title of the Patent	National/ International	Status Granted/ Published/ Filed	Patent Number	Date of Publication

## Annual Report 2020-2021

Prof. Biswendu Chatterjee	An Instrument for Insulation Condition Assessment	National	Granted	362595	23 March, 2021 (Date of Grant)
Prof. Sivaji Chakravorti	An Instrument for Insulation Condition Assessment	National	Granted	362595	23 March, 2021 (Date of Grant)

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Prof. Sivaji Chakravorti</b>	Dr. Arijit Baral	ISM Dhanbad	Joint Project sponsored by DST-SERB	2019-2022
	Prof. Chiranjib Koley	NIT Durgapur	Joint Project sponsored by DST-SERB	2018-2021
	Dr. Nasirul Haque	NIT Calicut	Joint Research and Publication	2020-2022
<b>Dr. Arpan Kumar Pradhan</b>	Prof. Stefan Tenbohlen	IEH, University of Stuttgart, Germany	Research Work under Alexander von Humboldt Postdoctoral Fellowship	2020-2021

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year

#### A. Books/Monographs Published :

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Dr. Nabamita Banerjee Roy and Prof. Kesab Bhattacharya</b>	Application of Signal Processing Tools and Artificial Neural Network in Diagnosis of Power System Faults	CRC Press; Taylor & Francis Group	ISBN-10 : 0367431130 ISBN-13 : 978-0367431136	2021

#### B. Books/Monographs Edited :

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Prof. Biswendu Chatterjee</b>	Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON)	IEEE	ISBN No.: 978-1-7281-6881-4	2020
<b>Prof. Sovan Dalai</b>	Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON)	IEEE	ISBN No.: 978-1-7281-6881-4	2020

#### C. Seminar/Workshop/Conference/Symposium Organized:

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

**Annual Report 2020-2021**

<b>Name of the Seminar/Workshop/Conference /Symposium</b>	<b>Name of the Coordinator(s)/ Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
2nd IEEE Conference on Applied Signal Processing, ASPCON 2020	Sovan Dalai (Organizing Chair)	2020 IEEE Applied Signal Processing Conference (ASPCON 2020)	Kolkata	7-9 October, 2020
2nd IEEE Conference on Applied Signal Processing, ASPCON 2020	Biswendu Chatterjee (Publication Chair)	2020 IEEE Applied Signal Processing Conference (ASPCON 2020)	Kolkata	7-9 October, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Sivaji Chakravorti</b>	Invited Talk	International Conference on Smart Engineering Technologies by Ramco Institute of Technology, Tamilnadu	Online	26 June, 2020
	Plenary Talk	International Conference for Convergence in Engineering at Netaji Subhash Engineering College, Kolkata	Online	5 September, 2020
	Invited Talk	FDP on Recent Trends in Communication Engineering by NIT Puducherry	Online	8 September, 2020
	Invited Talk	Talk on Health Management of Oil-Filled Transformers- Why and How by West Bengal Academy of Science & Technology	Online	10 September, 2020
	Key Note Address	International conference on computational Sciences- modelling, computing and soft Computing by NIT Calicut	Online	12 September, 2020
	Session Chair	Michael Faraday IET International Summit	Online	3 October, 2020

### Annual Report 2020-2021

Key Note Address	STTP on “Automation, Control, and Intelligent Systems (ACIS-2020)” Department of Electronics Instrumentation & Control Engineering Engineering College, Ajmer	Online	23 November, 2020
Invited Talk	Workshop on Advances in Dielectrics and High Voltage Engineering By IIT Ropar	Online	26 November, 2020
Invited Talk	Symposium titled "Symposium on Power Electronic and Renewable Energy System Control (PERESC - 2020)" by IIT Bhubaneswar	Online	3 December, 2020
Key Note Address	National Workshop on Electrical Measurements and Signal Conditioning (EMSC) by NIT Calicut	Online	14 December, 2020
Key Note Address	Faculty Development Program on Recent advances in Condition Monitoring of Power Equipment at NIT Calicut	Online	25 January, 2021
Invited Talk	FDP PROGRAM: Research Methodology at NIT Manipur	Online	28 January, 2021
Invited Talk	Short term Course on High Voltage and Electrical Insulation by IIT BHU	Online	1 February, 2021
Invited Talk	FDP on NBA and the processes at NIT Mizoram	Online	1 February, 2021
Invited Talk	ATAL FDP on Advanced Process control at NIT Calicut	Online	2 February, 2021
Invited Talk	Short Term Training Program on “Science: How it is documented, communicated and	Online	15 February, 2021

### Annual Report 2020-2021

		published at NIT Mizoram		
	Invited Talk	FDP on Cognitive Skills and Design Thinking by NIT Agaratala	Online	23 February, 2021
	Invited Talk	Workshop on “Recent Advances in Computational Electromagnetics and Signal Processing Tools for High Voltage Applications at NIT	Online	16 March, 2021
<b>Prof. Sovan Dalai</b>	Invited Talk	International Conference for Convergence in Engineering at Netaji Subhash Engineering College, Kolkata	Online	4 September, 2020
	Invited Talk	Talk on An Overview of Electrical Power System at Gargi Memorial Institute of Technology, Kolkata	Online	27 September, 2020
	Invited Talk	Faculty Development Program on Important Aspects of Electrical Power & Energy at MeghnadSaha Institute of Technology, Kolkata	Online	2 October, 2020
	Invited Talk	Talk on An overview of Phase Controlled Rectifiers (PCR) at Gargi Memorial Institute of Technology, Kolkata	Online	6 December, 2020
	Invited Talk	Faculty Development Program on Recent advances in Condition Monitoring of Power Equipment at NIT Calicut	Online	27 January, 2021
<b>Prof. Biswendu Chatterjee</b>	Invited Talk	AICTE sponsored short term training program on “Recent trends in Internet of Things and Embedded Systems based Monitoring and Control of Distributed Systems” Phase 1: at Narula Institute of Technology	Online	10-14 August, 2020.

### Annual Report 2020-2021

	Invited Talk	AICTE sponsored short term training program on “Recent trends in Internet of Things and Embedded Systems based Monitoring and Control of Distributed Systems” Phase 2: at Narula Institute of Technology	Online	24-29 August, 2020.
	Invited Talk	AICTE sponsored short term training program on “Recent trends in Internet of Things and Embedded Systems based Monitoring and Control of Distributed Systems” Phase 3: at Narula Institute of Technology	Online	7-12 September, 2020.

**6. Major Achievements of the Department during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Prof. Sivaji Chakravorti	Vice-President	Indian National Academy of Engineering	Delhi

**B. Any other Honours received by the Faculty Members**

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
Prof. Sivaji Chakravorti	Scientific Board Member for TUM University Foundation	Technical University Munich	Munich Germany
	Member of Program Advisory Committee on Electrical, Electronics and Computer Engineering	DST, GOI	Delhi
	Member of Subject Expert Committee on Engineering Sciences for Fund for Infrastructure in Science & Technology (FIST) program	DST, GOI	Delhi
	Member of the Board of Governors	APJ Abdul Kalam Technical University	Thiruvananthapuram, Kerala

## Annual Report 2020-2021

### ***ILLUMINATION ENGINEERING SECTION***

**4. Research Activities:**

**A. Areas of Research Activities :(Broad Areas)**

Optical Communication, Color Mixing of LEDs, Environmental effects on solid state light sources , Road Lighting Human Centric Lighting , Electroencephalography (EEG) based study of human performance under different Lighting Conditions , Optimization of Road Lighting Design , Outdoor Lighting, Mesopic Photometry, Optical Radiation & Health, Lighting Control Systems, Lighting Design Optimization.

**B. Major Research Projects :**

<b>Title of the Project</b>	<b>Type (Departmental / Individual)with sanctioned fund</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
Advanced Vision System for Foggy environment	Individual Rs. 10 lacs	Prof.Saswati Mazumdar as Principal Investigator	RUSA2.0	Completed
‘Experimental studies of free space laser communication link for data and voice transmission in different atmospheric condition’.	Individual Rs. 213.709 lacs	Prof. Saswati Mazumdar as Principal Investigator and Dr.Suddhasatwa Chakraborty as Co-Principal Investigator.	DRDO	Ongoing since December, 2017
“Design & Development of energy efficient, wireless light controller for daylight integrated artificial lighting system”	Individual Rs. 5 Lacs	Prof. Biswanath Roy as Principal Investigator	RUSA2.0	Completed
“Visual Performance Analysis of the Drivers in a Motorized Road under Lighting System.	Individual Rs. 5 Lacs	Dr. Suddhasatwa Chakraborty As Principal Investigator	RUSA2.0	Completed
Energy Efficient Outdoor Lighting Design using Mesopic Photometry.	Individual Rs. 5 Lacs	Sangita Sahana as Principal Investigator	RUSA2.0	Completed

**C. Doctoral Research Activities:**

<b>Number of students awarded Ph.D during the year</b>	<b>Number of Ph.D students registered in the Department</b>
2	1

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

**(Name of authors, Title of the article, Name of the Journal, Volume No.,PageNo/Article No., Year of publication)**

1. Suddhasatwa Chakraborty, Sourin Bhattacharya, Suddhasatwa Chakraborty and Susanta Ray, “An approach to comparative simulation of road lighting and estimation of associated quality parameter”,

## Annual Report 2020-2021

- Light & Engineering / Svetotekhnika, Vol. 29, No. 1, pp. 77–87, 2021 Svetotekhnika # 1, 2021, <https://doi.org/10.33383/2020-058>.
2. Suddhasatwa Chakraborty, Debnanu Ray, Saswati Mazumdar, “Introduction of a New Lighting Class for Motorized Roads in Indian Scenario”, Light & Engineering/Svetotekhnika, Vol. 29, No. 2, 2021#2, 2021, pp. 79–87, DOI: <https://doi.org/10.33383/2020-081>
  3. Sangita Sahana and Biswanath Roy, “Effect of Chromaticity of Surrounding Light Sources on Mesopic Adaptation Luminance”, Light & Engineering /Svetotekhnika, Vol. 29, No. 1, pp 30-38, 2021, <https://l-e-journal.com/en/journals/light-engineering-29-1/>
  4. Moutusi Bag; Saswati Mazumdar and Kalyan Kumar Ray, “A Cost-Effective Illuminance Sensor for Daylight Harvesting Lighting Control Systems”, Vol. 28, no. 4, pp 103-110, DOI: <https://doi.org/10.33383/2019-012Vol>
  5. Basudeb Das, Shubham Bardhan, Tapas Maity, Saswati Mazumdar, “Variable CCT Constant Illuminance White LED Light Communication System with dimming feature”, Elsevier /Results in Optics journal, 2020, doi: <https://doi.org/10.1016/j.rjo.2020.100013>
  6. Basudeb Das, Saswati Mazumdar, “Low cost, high color rendition, CCT variable lighting system based on W-G-B LED”, Elsevier /Optik journal, Vol. 231, <https://doi.org/10.1016/j.ijleo.2021.166321>.

**F. Research Articles Published in Conference Proceedings during the year:  
(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**

1. Sangita Sahana, Dipanjan Datta, Biswanath Roy, “Estimation of Mesopic Adaptation Luminance under Different Surrounding Lighting Ambience”, Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON), page no 173, ISBN: 978-1-7281-6882-1, 2020, <https://ieeexplore.ieee.org/document/9276655/>
2. Basudeb Das, Tishya Sarma Sarkar, Shibabrata Mukherjee, Bappaditya Sinha and Saswati Mazumdar, “Development of full duplex Laser based data and voice communication system bridging two IoT networks”, Proceedings of 21st International Conference on Distributed Computing and Networking (ICDCN 2020), CAN, <https://doi.org/10.1145/3369740.3372763>.
3. Tishya Sarma Sarkar, Bappaditya Sinha, Shibabrata Mukherjee, Indranuj Joardar, Saswati Mazumdar, “Development of an FPGA based Indoor Free Space Optical (FSO) Communication system using 808nm Infrared (IR) LASER Source”, “Development of an FPGA based Indoor Free Space Optical (FSO) Communication system using 808nm Infrared (IR) LASER”, Proceedings of 2020 IEEE Calcutta Conference (CALCON), ISBN: 978-1-7281-4282-1. Page: 315-319.
4. Basudeb Das, Tapas Maity and Saswati Mazumdar, “Indoor Optical Intercom System: Application of Visible Light Communication system for audio transmission using PDM”, Proceedings of 2020 IEEE Calcutta Conference (CALCON), ISBN: 978-1-7281-4282-1., doi: 10.1109/CALCON49167.2020.9106557.

**H. Research Collaboration with other Departments/Institutes/Industries:**

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Dr. Suddhasatwa Chakraborty	Chair of Lighting Technology, Department of Energy & Automation Technology, Technical University of Berlin (TUB), Germany	Chair of Lighting Technology, Department of Energy & Automation Technology, Technical University of Berlin (TUB), Germany	Research Colloboration	Since May, 2018

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**F. Invited Lectures Delivered/Sessions Chaired:**



**Annual Report 2020-2021**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Suddhasatwa Chakraborty</b>	Invited Lectures	Special talk in IES (Illumination Engineering Society, North America) "Light for Life" Global Collaboration Conference. Presented Human Centric Lighting: Paradigm Shift in the field of Illumination Engineering		27-28 July, 2020
<b>Dr. Suddhasatwa Chakraborty</b>	Invited Lectures	Invited Research talk on 'Recent Trends on Illumination Engineering' on January 22, 2021 organized Electrical Engineering Department of Institute of Engineering & Management, Kolkata		22 January, 2021
<b>Dr. Suddhasatwa Chakraborty</b>	Invited Lectures	Five Days Online Faculty Development Programme On "Smart Practices Towards Tomorrow's Electric Power Paradigm" Organized by: Department of Electrical Engineering, GMIT, Technically Sponsored by: IEEE PES, Kolkata Section Presented "Human Centric Lighting : A Paradigm Shift"		
<b>Dr. Suddhasatwa Chakraborty</b>	Invited Lectures	Online Student Induction Program (eSIP-2020) organized by Institute Induction Program Cell (IIPC) of Aliah University		31 December, 2020 to 13 January, 2021
<b>Dr. Suddhasatwa Chakraborty</b>	Invited Lectures	Invited Series Talk of 5 lectures in ISLE e 6 months CERTIFICATE e Course on "Paradigm shift in the field of Illumination Engineering: Illumination Engineering at cross road: Classical approach to the new approach towards "Lumen Seen...."		May 2020 to June 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Sangita Sahana</b>	AICTE Training And Learning (ATAL) Academy Online FDP on "Artificial Intelligence"	Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal	7-11 December, 2020
<b>Sangita Sahana</b>	Multi-Disciplinary Online FDP on "Product Development & Industrial Research -2020"	Government College of Engineering, Aurangabad	6-10 July, 2020

## Annual Report 2020-2021

### 6. Major Achievements of the Department during the year :

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Dr. Suddhasatwa Chakraborty	Division Associate of Division-4	Division -4 , International Commission on Illumination (CIE)	International Commission on Illumination (CIE), Vienna

#### D. Any Other Major Achievements:

- a) Prof. Saswati Mazumdar has been nominated as Chairperson of the Electro-Technical Committee, ETD-49, Bureau of Indian Standard (BIS)
- b) Prof. Saswati Mazumdar has been nominated as Chairperson of the National Lighting Code .
- c) Dr. Suddhasatwa Chakraborty has been nominated as Division Associate in Division-4, International Commission on Illumination (CIE) from India. Dr. Suddhasatwa Chakraborty has attended Division-4 meeting held on 20 May, 2020.
- d) Dr. Suddhasatwa Chakraborty has been nominated as Member of the Electro-Technical Committee, ETD-49, Bureau of Indian Standard (BIS)
- e) Dr. Suddhasatwa Chakraborty has been nominated as Executive Committee Member of the IET(UK) , Kolkata Local Network.
- f) Dr. Suddhasatwa Chakraborty has been nominated as Director (Technical) of the ISLE, Calcutta State Centre.

## *MEASUREMENT AND INSTRUMENTATION SECTION*

### 4. Research Activities:

#### A. Areas of Research Activities: Instrumentation, Sensors, Signal and Image: (Broad Areas) Processing, Intelligent systems.

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Local Lightning Prediction and Warning System	Individual	Debangshu Dey	WB DSTBT	19-2022
Individualization of the Head related transfer function for assisted hearing	Individual	Debangshu Dey	TARE, SERB, GoI	2019-2022

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
---	--

NIL	05
-----	----

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

**(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)**

1. Kaushik Das Sharma, **Amitava Chatterjee**, Patrick Siarry, and Anjan Rakshit, "A novel disturbance rejection factor based stable direct adaptive fuzzy control strategy for a class of nonlinear systems", *Expert Systems: The Journal of Knowledge Engineering* (Current impact factor: 2.587), Wiley-Blackwell Publishers, e12651, 2021.
2. Pritam Paral, **Amitava Chatterjee**, and Anjan Rakshit, "Human position estimation based on filtered sonar scan matching: A novel localization approach using DENCLUE," *IEEE Sensors Journal* (Current impact factor: 3.301), vol. 21, no. 6, pp. 8055-8064, March 15, 2021.
3. Pubali De, **Amitava Chatterjee**, and Anjan Rakshit, "Regularized K-SVD based dictionary learning approaches for PIR sensor based detection of human movement direction," *IEEE Sensors Journal* (Current impact factor: 3.301), vol. 21, no. 5, pp. 6459-6467, March 1, 2021.
4. Shouvik Chaudhuri, Rana Saha, **Amitava Chatterjee**, Saikat Mookherjee, and Dipankar Sanyal, "Adaptive neural-bias-sliding mode control of rugged electrohydraulic system motion by recurrent hermite neural network", *Control Engineering Practice* (Current impact factor: 3.475), Elsevier publishers, vol. 103, 104588, October 2020.
5. Pubali De, **Amitava Chatterjee**, and Anjan Rakshit, "PIR sensor based AAL tool for human movement detection: Modified MCP based dictionary learning approach", *IEEE Transactions on Instrumentation and Measurement* (Current impact factor: 4.016), vol. 69, no. 10, pp. 7377-7385, October, 2020.
6. Shouvik Chaudhuri, Rana Saha, **Amitava Chatterjee**, Saikat Mookherjee, and Dipankar Sanyal, "Development of a motion sensing system based on visual servoing of an eye-in-hand electrohydraulic parallel manipulator," *IEEE Sensors Journal* (Current impact factor: 3.301), vol. 20, no. 14, pp. 8108-8116, July 15, 2020.
7. Pritam Paral, **Amitava Chatterjee**, and Anjan Rakshit, "Chaos based random sampling for photometric invariant shoe detection with vision sensor in human-robot coexisting environments", *IEEE Sensors Journal* (Current impact factor: 3.301), vol. 20, no. 10, pp. 5424-5434, May 15, 2020.
8. Santanu Chattopadhyay, **Gautam Sarkar** and Arabinda Das "Wavelet Based Classification of Myocardial Ischemia Arrhythmia Congestive Heart Failure and Sleep Apnea", *International Journal of Medical and Health Science* Vol.14 No: 2, 2020, pp. 49-52.
9. Arijit Ghosh, **Palash Kumar Kundu** and **Gautam Sarkar** "Design and Real-Time Implementation of Cloud based Indoor Illumination Monitoring System", *Journal of The Institution of Engineers (India): Series – B, Volume No: Vol. 101, No. 3, pp. 223-227, 2020 (ISSN/ISBN No: 2250-2106) May, 2020.*
10. Sandip Sadhukhan, Arpita Sarkar, Debprasad Sinha, Goutam Kumar Ghorai, **Gautam Sarkar** and Ashis Kumar Dhara, "Attention Based Fully Convolutional Neural Network for Simultaneous Detection and Segmentation of Optic Disc in Retinal Fundus Images", *International Journal of Medical and Health Science* Vol.14 No: 8, pp. 200-204, 2020.
11. Sourav Tola, Jayanta K. Chanda and **Gautam Sarkar** "Improved detection of woven fabric defect by optimized and adoptive cylindrical band reject filtering" *The Journal of Textile Institute (Taylor Francis)* pp. 1-12, 2020.
12. Biswarup Ganguly, Sayanti Chaudhury, Subrata Biswas, **Debangshu Dey**, **Sugata Munshi**, Biswendu Chatterjee, Sovan Dalai, Sivaji Chakravorti, "Wavelet Kernel based Convolutional Neural Network for Localization of Partial Discharge Sources within a Power Apparatus", in *IEEE Transactions on Industrial Informatics*, (Impact Factor: 10.21), Volume: 17, Issue: 3, March 2021, pp: 1831 - 1841 , doi: 10.1109/TII.2020.2991686.
13. Amitava Halder, Saptarshi Chatterjee, **Debangshu Dey**, Surajit Kole, **Sugata Munshi**, "An adaptive morphology based segmentation technique for lung nodule detection in thoracic CT image," *Computer*

## Annual Report 2020-2021

- Methods and Programs in Biomedicine, Elsevier (**Impact Factor 5.428**) Volume 197, 2020, <https://doi.org/10.1016/j.cmpb.2020.105720>
14. Amitava Halder, **Debangshu Dey**, Surajit Koley, “Lung Nodule Detection from Feature Engineering to Deep Learning in Thoracic CT Images: a Comprehensive Review”, J Digit Imaging, Springer-Verlag, (**Impact Factor 4.57**), 2020 Jun;33(3):655-677. Doi: 10.1007/s10278-020-00320-6.
  15. S. Ray, B. Ganguly, **Debangshu Dey**, “Identification and Classification of Stator Inter-Turn Faults in Induction Motor using Wavelet Kernel based Convolutional Neural Network”, Accepted in **Electric Power Components and Systems**, (**Impact Factor 1.16**), Taylor and Francis Publication, Manuscript ID UEMP-2020-0167.R1, 2020.
  16. Saptarshi Chatterjee, **Debangshu Dey**, **Sugata Munshi**, Surajit Gorai, “Dermatological expert system implementing the ABCD rule of dermoscopy for skin disease identification”, Expert Systems with Applications, Elsevier (**Impact Factor 6.954**), 2020, 114204, ISSN 0957-4174, <https://doi.org/10.1016/j.eswa.2020.114204>.
  17. B. Ganguly, A. Bhattacharya, A. Srivastava, **Debangshu Dey**, and **S. Munshi** “Single Image Haze Removal with Haze Map Optimization for Various Haze Concentrations”, Accepted in IEEE Transactions on Circuits and Systems for Video Technology, (**Impact Factor 4.685**), TCSVT-05165-2020.R2, 2021.
  18. A. K. Das, **Debangshu Dey**, S. Dalai, B. Chatterjee, “A Transfer Learning Approach to Sense the Degree of Surface Pollution for Metal Oxide Surge Arrester Employing Infrared Thermal Imaging”, **IEEE Sensors Journal (Impact Factor: 3.076)**, vol. 21, no. 15, pp. 16961-16968, 2021, doi: 10.1109/JSEN.2021.3079570.
  19. Subhra J. Sarkar, Sarat Kumar Sahoo, **Palash K. Kundu**, and Rutuparna Pattanayak, “Development of a quasi-real time distribution voltage monitoring system”, IET Generation, Transmission & Distribution, Vol. 14, Iss. 20, October, 2020, pp. 4622-4630.
  20. A.K. Thakur, **P.K. Kundu**, A. Das, “Prediction of Unknown Fault of Induction Motor using SVM following Decision-Directed Acyclic Graph” Journal of Institution of Engineers(India): Series B , 102(3), pp : 573-583(2021).
  21. Arijit Ghosh, **Palash Kumar Kundu**, **Gautam Sarkar**, “Internet Of Human Centric Lighting: A Brief Overview On Indian Aspects”, Science And Culture, Volume No: Vol 86, No. 11-12, pp. 350-356. Year of publication: 2020 (ISSN/ISBN No: 0036-8156)
  22. Mukherjee, A., **Kundu, P. K.**, & Das, A. “Power system fault identification and localization using multiple linear regression of principal component distance indices. International Journal of Applied Power Engineering, 9(2), pp. 113-126. doi: <http://doi.org/10.11591/ijape.v9.i2.pp113-126>
  23. Mukherjee, A., **Kundu, P. K.**, & Das, A., “Application of Principal Component Analysis for Fault Classification in Transmission Line with Ratio-Based Method and Probabilistic Neural Network: A Comparative Analysis”, Journal of The Institution of Engineers (India): Series B, 101(4), 321-333. doi: <https://doi.org/10.1007/s40031-020-00466-5,2020>.
  24. Mukherjee, A., **Kundu, P. K.**, & Das, A., “Transmission Line Fault Location Using PCA-Based Best-Fit Curve Analysis”, Journal of The Institution of Engineers (India): Series B, 102(2), 339–350. doi: <https://doi.org/10.1007/s40031-020-00515-z,2021>.
  25. Mukherjee, A., **Kundu, P. K.**, & Das, A., “Transmission Line Faults in Power System and the Different Algorithms for Identification, Classification and Localization: A Brief Review of Methods”, Journal of The Institution of Engineers (India): Series B, 102(4), 855–877 doi: <https://doi.org/10.1007/s40031-020-00530-0,2021>.
  26. Mukherjee, A., **Kundu, P. K.**, & Das, A. “A Differential Signal-Based Fault Classification Scheme Using PCA for Long Transmission Lines”, Journal of The Institution of Engineers (India): Series B, 102(3), 403–414 doi: <https://doi.org/10.1007/s40031-020-00529-7,2021>.
  27. Mukherjee, A., **Kundu, P. K.**, & Das, A. “Classification and Fast Detection of Transmission Line Faults Using Signal Entrop”, Journal of The Institution of Engineers (India): Series B, 102(5), 655–670 doi: <https://doi.org/10.1007/s40031-020-00526-w,2021>.
  28. Mukherjee, A., **Kundu, P.K.** & Das, A. “A supervised principal component analysis-based approach of fault localization in transmission lines for single line to ground faults” Electrical Engineering doi: <https://doi.org/10.1007/s00202-021-01221-9,2021>.

## Annual Report 2020-2021

29. Mukherjee, A., Chatterjee, K., **Kundu, P.K.** & Das, A. "Probabilistic Neural Network aided fast classification of transmission line faults using differencing of current signal", Journal of The Institution of Engineers (India): Series B, doi: <https://doi.org/10.1007/s40031-021-00574-w.2021>.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

Pritam Paral, **Amitava Chatterjee**, and Anjan Rakshit, "Study of score coefficient functions for DBSCAN-based photometric invariant approach in vision sensor-based shoe detection for human tracking," In: S. Chakraborti, A. K. Panja, A. Mukherjee, and A. K. Bar (eds) *Intelligent Electrical Systems: A Step towards Smarter Earth*, CRC Press Publishers, 1st Edition, pp. 173-180, 10 January, 2021 (Proceedings of the *International Conference on Industrial Electronics Mechatronics Electrical & Mechanical Power (IEMPOWER 2019)*, 21-23 November, 2019, Kolkata, India). DOI: <https://doi.org/10.1201/9780429355998>

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Sujoy Kumar Roy Chowdhury and **Amitava Chatterjee**, "Speech enhancement using K-Sparse autoencoder techniques," Proc. *International Conference on Artificial Intelligence and Smart Systems (ICAIS-2021)*, Coimbatore, India, 25-27 March, pp. 518-525, 2021. DOI: 10.1109/ICAIS50930.2021.9396033.
2. D Bhattacharya, PP Chandra, **B Bhattacharyya**, **Sugata Munshi**, Optimized Thermocouple Temperature Sensor using 555 Timer and ANN Based Linearization, Proceedings of IEEE Calcutta Conference (CALCON) 2020, pp. 288-291. DOI: 10.1109/CALCON49167.2020.9106536.
3. Anadi Biswas, Saptarshi Chatterjee and **Sugata Munshi**, Automated System Design for the Identification of Sleep Disorder: Cross-correlation and SVM Based Approach, Proceedings of 2<sup>nd</sup> International Conference On VLSI Device, Circuit and System, IEEE VLSI DCS, July 2020, pp. 418-422, DOI: 10.1109/VLSIDCS47293.2020.9179872.
4. Saptarshi Chatterjee, **Debangshu Dey** and **Sugata Munshi**, "Empirical Wavelet Fractal Texture Analysis for Skin Disease Identification", *Proc. of 2020 IEEE Region 10 Symposium (TENSYP)*, 5-7 June, 2020, Dhaka, Bangladesh, pp. 819-822, DOI: 10.1109/TENSYP50017.2020.9230698.
5. B. Ghosh, A. Ghosh, **D. Dey**, S. Dalai and B. Chatterjee, "A Scheme For Local Lightning Detection And Prediction System," in Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON), 2020.
5. B. Ganguly, A. Bhattacharya, A. Srivastava, **D. Dey** and **S. Munshi**, "Fusion of Mathematical Morphology with Adaptive Gamma Correction for Dehazing and Visibility Enhancement of Images," in Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON), 2020.
6. Saptarshi Chatterjee, **Debangshu Dey**, **Sugata Munshi** "Empirical Wavelet Fractal Texture Analysis for Skin Disease Identification", 2020 IEEE Region 10 Symposium (TENSYP), Dhaka, Bangladesh, 2020, pp. 819-822, doi: 10.1109/TENSYP50017.2020.9230698.
7. A. Halder, S. Chatterjee and **D. Dey**, "Superpixel and Density Based Region Segmentation Algorithm for Lung Nodule Detection", 2020 IEEE Calcutta Conference (CALCON), Kolkata, India, 2020, pp. 511-515, doi: 10.1109/CALCON49167.2020.9106569.
8. A. Halder, S. Chatterjee and **D. Dey**, "Morphological Filter Aided GMM Technique for Lung Nodule Detection", in Proceedings of 2020 2nd IEEE Applied Signal Processing Conference (ASPCON 2020), 7-9 October, 2020, Kolkata, India.
9. Anumita Mitra; **Palash Kundu**; Rajarshi Gupta, "Segment Specific Modeling of Electrocardiogram for Improved Reconstruction Error", 2020 IEEE Applied Signal Processing Conference (ASPCON), 7-9 October, 2020 DOI: 10.1109/ASPCON49795.2020.9276731.

## Annual Report 2020-2021

10. Chayan Kumar Basak, **Palash Kumar Kundu**; **Gautam Sarkar**, “Classification of Thermal Tomographic Images using Eigenface Method”, 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI), 8-10 Jan. 2021, **DOI:** 10.1109/CMI50323.2021.9362899.
11. A. K. Thakur, **P. K. Kundu**, “Authentication of unknown fault for a three phase induction motor using stator current spectral analysis”, IEEE International Conference on ‘Control, Instrumentation, Energy and Communication’ 2016, PP : 279-283, DOI: 10.1109/CIEC.2016.7513831 . [ *IEEE Xplore Compliant ISBN No.: 978-1-5090-0035-7*]
12. Subhra J. Sarkar, **Palash K. Kundu**, and **Gautam Sarkar**, “Performance analysis of Lambda-iteration method for solving ELD problem in cloud based generation scheduling data management system”, 17<sup>th</sup> IEEE India International Conference on Electronics, Energy, Environment, Communication, Computer and Control (INDICON-2020), New Delhi, India, December, 2020, pp. 1-5, ISBN 172816916X, 9781728169163.
13. Arijit Ghosh, **Palash Kumar Kundu**, **Gautam Sarkar**, "Title of the paper: Computer Vision based Obstacle Identification using Real-Time Illumination Sensor Data", 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI), page no.: 190-195, Name of the Publisher: IEEE, ISSN/ISBN No: ISBN:978-1-7281-9343-4, Year: 2021.
14. Mukherjee, A., **Kundu, P. K.**, & Das, A. (2021). A Wavelet Entropy-Based Power System Fault Classification for Long Transmission Lines. Emerging Technologies in Data Mining and Information Security: Proceedings of IEMIS 2020, Volume 2, pp. 123 - 131, Springer Singapore. doi: [https://doi.org/10.1007/978-981-33-4367-2\\_12](https://doi.org/10.1007/978-981-33-4367-2_12), Online ISBN: 978-981-33-4367-2.
15. A Correlation-Based Classification of Power System Faults in a Long Transmission Line. In Emerging Technologies in Data Mining and Information Security: Proceedings of IEMIS 2020, Volume 2, pp. 113-121, Springer Singapore. doi: [https://doi.org/10.1007/978-981-33-4367-2\\_12](https://doi.org/10.1007/978-981-33-4367-2_12), Online ISBN: 978-981-33-4367-2

### G. Patents Granted/ Published/ Filed during the year:

Name of the Inventors	Title of the Patent	National/ International	Status Granted/P ublished/ Filed	Patent Number	Date of Publica -tion
B. Chatterjee, S. Dalai, D. Dey and S. Chakravorti	A SYSTEM AND METHOD FOR ONLINE CONDITION MONITORING OF DEVICES INVOLVING HIGH VOLTAGE INSULATION	National	Filed	Indian Patent Application No.: 202031023459 (TEMP/E1/259 30/2020-KOL)	June, 2020

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### B. Books/Monographs Edited:

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Debangshu Dey, Sovan Dalai, Susanta Ray, Biswendu Chatterjee.	2020 IEEE Applied Signal Processing Conference (ASPCON), 2020, doi: 10.1109/ASPCON49795.2020.9276712,	IEEE	ISBN:978-1-7281-6883-8	2020

## Annual Report 2020-2021

### C. Seminar/Workshop/Conference/Symposium Organized:

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
2020 IEEE Applied Signal Processing Conference (ASPCON), 2020	<b>Debangshu Dey,</b> Sovan Dalai, Susanta Ray, Biswendu Chatterjee.	2020 IEEE Applied Signal Processing Conference (ASPCON), 2020, doi: 10.1109/ASPCON49795.2020.9276712	Kolkata	2020

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Sugata Munshi</b>	Delivered Keynote speech on "Sensor Systems for IoT Applications"	AICTE sponsored STTP on " Digital Energy Network: IoT Applications in Smart Grid" (Phase-I),	Department of Electrical Engineering, JIS College of Engineering, Kalyani	8-11 February, 2021
<b>Prof. Sugata Munshi</b>	Delivered a lecture titled "Semiconductor Sensors"	Workshop on 'Sensors: The most essential component for a project', organized by IET(UK), Jadavpur University	Kolkata	3 November, 2020
<b>Prof. Sugata Munshi</b>	Delivered a Keynote speech on "Signal Conditioning and Signal Processing for Sensor Systems"	2nd IEEE Conference on Applied Signal Processing , ASPCON 2020	Kolkata	8 October, 2020
<b>Prof. Sugata Munshi</b>	Delivered a lecture titled "State-of-the-art current transducers".	Faculty Development Programme organized by IEEE Power Engineering Society, Kolkata Section and Meghnad Saha Institute of Technology	Kolkata	30 September, 2020
<b>Prof. Sugata Munshi</b>	Chaired a session on keynote speech by Prof. Debatosh Guha on "The Origin of Electronic Systems".	Webinar on R &D Expo Organized by FET, Jadavpur University	Kolkata,	27 February, 2021
<b>Prof. Sugata Munshi</b>	Chaired a session on "Control System and Biosignals"	2021 IEEE 2 <sup>nd</sup> International Conference on	Kolkata,	8-10 January, 2021

### Annual Report 2020-2021

		Control, Measurement and Instrumentation (CMI)		
<b>Prof.Sugata Munshi</b>	Chaired a session	2nd IEEE Conference on Applied Signal Processing , ASPCON 2020	Kolkata,	7-9 October, 2020
<b>Amitava Chatterjee</b>	Invited Speaker (Title of the Talk: Sparse Representation Based Approaches for Signal and Image Processing Problems)	“One Day Symposium on Mathematics and Computer Science”	School of Mathematical and Computer Sciences, Indian Association for Cultivation of Science, Kolkata, India	18 March, 2021
<b>Amitava Chatterjee</b>	Invited Speaker (Title of the Talk: Learning Strategies For Human-Robot Collaboration)	International Webinar on “Modern Trends of Electrical Engineering and Its Application” Organized by Department of Electrical Engg., Dr. B. C. Roy Engineering College, Durgapur (Duration: 20-24 December, 2020)	Virtual	21 December , 2020
<b>Amitava Chatterjee</b>	Session Chair (Chaired Session for Keynote Speech by Prof. Calin Belta, Department of Mechanical Engineering, Boston University, USA, on “Optimization-based formal synthesis of control strategies for dynamical systems”)	IEEE 2nd International Conference on Control, Measurement, and Instrumentation (CMI 2021) (Organizer: IEEE Joint CSS-IMS Kolkata Chapter) (Duration: January 08-10, 2021)	Virtual	08 January, 2021
<b>Amitava Chatterjee</b>	Session Chair (Chaired Technical Session 1)	2nd IEEE Conference on Applied Signal Processing (ASPCON 2020) (Organizer: IEEE Signal Processing Society Kolkata Chapter)	Virtual Hall 1	07 October, 2020



### Annual Report 2020-2021

		(Duration: 07-09 October, 2020)		
<b>Amitava Chatterjee</b>	Session Chair (Chaired Session on “Robotics & Mechatronics + AI & ML”)	4th International conference on Electronics, Materials Engineering and Nano-Technology (IEMENTech2020) (Organizer: ECE Department, Institute of Engineering & Management, Salt Lake, Kolkata, India)	Virtual	02 October, 2020
<b>Biswajit Bhattacharyya</b>	Delivered a lecture on “Power Distribution Technology” for Management Trainee	Programme on “Power Distribution Technology” for Management Trainee	HRD Department, CESC Limited, P-18 Taratolla Road Kolkata-88	8 December, 2020
<b>Biswajit Bhattacharyya</b>	Acted as a member in the assessment committee formed by National Council of Science Museum for the assessment of their technical staffs	Assessment programme for the technical staffs of the organization	Online program for National Council of Science Museums, Govt. of India	18 November, 2020
<b>Biswajit Bhattacharyya</b>	Acted as a member in the assessment committee formed by National Council of Science Museum for the assessment of their technical staffs	Assessment programme for the technical staffs of the organization	Online program for National Council of Science Museums, Govt. of India	4 September, 2020
<b>Palash Kumar Kundu</b>	Session chair	IEEE International symposium on sustainable energy, signal processing and cyber security.	Organized by GIET University, Gunpur, Odisha, India on 16-17 December’2020.	2 days
<b>Debangshu Dey</b>	Invited Speaker	One Week Faculty Development Programme On Research and Technical Challenges in Energy and Power System (RTCEPS 2020) Organized by: Department of Electrical Engineering, Narula Institute of Technology	Kolkata	29 June to 4 July, 2020

## Annual Report 2020-2021

<b>Debangshu Dey</b>	Invited Speaker	Faculty Development Programme "Recent Advances in Condition Monitoring of Power Equipment" organized by the Department of Electrical Engineering, NIT Calicut, scheduled on 29 January, 2021 Friday from 12:00 noon to 1:30 pm on the topic titled, "Signal Conditioning and Analysis in High Voltage Engineering".	Calicut, Kerala	29 January, 2021
----------------------	-----------------	---	-----------------	------------------

### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
<b>Anadi Biswas</b> (Research Scholar under the guidance of <b>Prof. Sugata Munshi</b> )	Automated System Design for the Identification of Sleep Disorder: Cross-correlation and SVM Based Approach	2 <sup>nd</sup> International Conference On VLSI Device, Circuit and System, IEEE VLSI DCS	Kolkata	18-19 July, 2020
Presenter: Pritam Paral (Research Scholar) Supervisor - <b>Amitava Chatterjee</b>	Sonar sensing based human leg localization using Gaussian process regression	7th International Conference on Mathematics and Computing (ICMC 2021), West Bengal, India	Virtual	02-05 March, 2021
Presenter: Sujoy Kumar Roy Chowdhury (Research Scholar) Supervisor - <b>Amitava Chatterjee</b>	Speech enhancement using K-Sparse autoencoder techniques," DOI: 10.1109/ICAIS50930.2021.9396033	International Conference on Artificial Intelligence and Smart Systems (ICAIS-2021), Coimbatore, India		25-27 March, 2021
<b>Antara Ghosh</b> (Project Fellow/Research Scholar under the guidance of <b>Dr. Debangshu Dey</b> )	A Scheme For Local Lightning Detection And Prediction System	2020 IEEE Applied Signal Processing Conference (ASPCON), 2020	Kolkata	7-9 October, 2020
<b>Biswarup Ganguly</b> (Research Scholar under the guidance of <b>Dr. Debangshu</b> )	Fusion of Mathematical Morphology with Adaptive Gamma Correction for Dehazing and Visibility Enhancement of Images	2020 IEEE Applied Signal Processing Conference (ASPCON), 2020	Kolkata	7-9 October, 2020

**Annual Report 2020-2021**

<b>Dey and Prof. Sugata Munshi)</b>				
<b>Saptarshi Chatterjee</b> (Research Scholar under the guidance of <b>Dr. Debangshu Dey and Prof. Sugata Munshi)</b>	Empirical Wavelet Fractal Texture Analysis for Skin Disease Identification	2020 IEEE Region 10 Symposium (TENSYMP), Dhaka, Bangladesh, 2020	Dhaka, Bangladesh, 2020	2020
<b>A. Halder</b> (Research Scholar under the guidance of <b>Dr. Debangshu Dey)</b>	Morphological Filter Aided GMM Technique for Lung Nodule Detection	2020 IEEE Applied Signal Processing Conference (ASPCON), 2020	Kolkata	7-9 October, 2020

**6. Major Achievements of the Department during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Amitava Chatterjee</b>	Adjudged an “Outstanding Associate Editor of IEEE Transactions on Instrumentation and Measurement” in 2020	IEEE Instrumentation and Measurement Society	Virtual
<b>Amitava Chatterjee</b>	Recognized in World Ranking of Top 2% Scientists from India in the Field of “Artificial Intelligence and Image Processing” published in October 2020, based on a study carried out by scientists from Stanford University (Source: J. P. A. Ioannidis, K. W. Boyack, and J. Bass, “Updated science-wide author databases of standardized citation indicators”, PLOS BIOLOGY, October 16, 2020).		
<b>Amitava Chatterjee</b>	Recognized by IEEE Transactions on Instrumentation and Measurement as the Silver Medal winner in the category of “Most Productive Associate Editors in the past 7 years” during the special occasion of IEEE TIM’s 70th Anniversary.	IEEE Instrumentation and Measurement Society ( <a href="https://tim.ieee-ims.org/70">https://tim.ieee-ims.org/70</a> )	
<b>Debangshu Dey</b>	“Young Faculty Research Fellowship”	Visvesvaraya PhD Scheme, Ministry of Electronics & Information Technology, GoI	India

## Annual Report 2020-2021

<b>Debangshu Dey</b>	Teachers Associateship for Research Excellence award (TARE-SERB)	DST, GoI	India
----------------------	--	----------	-------

### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
<b>Saptarshi Chatterjee</b> (Research Scholar under the guidance of <b>Dr. Debangshu Dey and Prof. Sugata Munshi</b> )	Outstanding Volunteer award	IEEE, Kolkata Section	2020

### D. Any Other Major Achievements:

- Amitava Chatterjee** got appointed as an Associate Editor-in-Chief, IEEE Transactions on Instrumentation and Measurement, in 2021.

### 7. Extension Activities of the Department during the year:

#### A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.

**Prof. Sugata Munshi** served as a member (subject expert) in the interview board for the selection of “Graduate Engineers” by ‘Coal India Ltd’, in January, 2021.

## *MACHINES AND ELECTRIC DRIVES SECTION*

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

- Machine analysis
- Condition monitoring of rotating machines
- Control of Electric Drives
- Renewable Energy generation and control
- PV-wind and Hybrid generation with DFIG and SCIG

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

- Soubhik Bagchi, **Debashis Chatterjee**, Rupam Bhaduri, Pabitra Kumar Biswas, “An improved low-voltage ride-through (LVRT) strategy for PV-based grid connected inverter using instantaneous power theory”, IET Generation Transmission and Distribution, vol.3, pp. 883 – 893, March, 2021.
- Soumyajit Ghosh, **Debashis Chatterjee**, “Artificial Bee Colony Optimization Based Non-Intrusive Appliances Load Monitoring Technique in a Smart Home”, IEEE Transactions on Consumer Electronics, vol. 67(1), pp. 77-86, Jan, 2021.
- Adikanda Parida, Yogendra Singh, **Debashis Chatterjee**, “Solar PV augmented wind energy generation system with improved efficiency control of doubly fed induction generator through adjustable stator frequency”, International Transactions on Electrical Energy Systems, Wiley, vol. 21(1), pp.e12690, January, 2021.
- Nikhilesh Panda, Bikram Das, Abanishwar Chakrabarti, Prabir Ranjan Kasari, Aniruddha Bhattacharya, **Debashis Chatterjee**, “A New Grid Interactive 11-Level Hybrid Inverter Topology for

## Annual Report 2020-2021

- Medium-Voltage Application”, IEEE Transactions on Industry Applications, vol. 57(1), pp. 869-881, December, 2020.
5. Soumyajit Ghosh, Dulal Manna, Arunava Chatterjee, **Debashis Chatterjee**, “Remote Appliance Load Monitoring and Identification in a Modern Residential System with Smart Meter Data”, IEEE Sensors Journal, vol. 21(4), pp. 5082 - 5090, Feb, 2021.
  6. Subhendu Bikash Santra, Aratrika Roy, Tanmoy Roy Choudhury, **Debashis Chatterjee**, Byamakesh Nayak, “Performance improvement of DC-DC converter using L-D-based modified GaN-FET driver”, International Journal of Circuit Theory and Applications, Wiley, vol. 48(6), pp. 860-873, June, 2020.
  7. Subhendu Bikash Santra, **Debashis Chatterjee**, Yam P Siwakoti, Frede Blaabjerg, “Generalized Switch Current Stress Reduction Technique for Coupled-Inductor based Single Switch High Step-Up Boost Converter” IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 9(2), pp. 1863 - 1875, Feb, 2021.
  8. Subhendu Bikash Santra, **Debashis Chatterjee**, Kundan Kumar, Manuele Bertoluzzo, Ariya Sangwongwanich, Frede Blaabjerg, “Capacitor Selection Method in PV Interfaced Converter Suitable for Maximum Power Point Tracking”, IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 9(2), pp. 2136 - 2146, Feb, 2021.
  9. A Chatterjee, **D Chatterjee**, “An Improved Current Balancing Technique of Two-Winding IG Suitable for Wind-PV-Based Grid-Isolated Hybrid Generation System”, IEEE Systems Journal, vol. 14(4), pp. 4874 - 4882, Dec, 2020.
  10. S Kundu, **D Chatterjee**, K Chakrabarty, “Control of chaotic advection for mixing system using universal motors”, IET Electric Power Applications, vol. 14(9), pp. 1519-1531, September 2020.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. S. Ray, B. Ganguly and D. Dey, "Identification and Classification of Stator Inter-Turn Faults in Induction Motor Using Wavelet Kernel Based Convolutional Neural Network," in *Electric Power Components and Systems*, vol. 48, no. 3, pp. 1421-1432, December. 2020.

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. D. Bhowmick, D. Maiti, **S. Kar Chowdhury** and S. K. Biswas, "Performance Estimation of an Inverter Fed Three Phase Induction Motor at Reduced Flux Condition," 2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE2020), Cochin, India, 2020, pp. 1-6, doi: 10.1109/PESGRE45664.2020.9070513.
2. D. Bhowmick, **S. Kar Chowdhury**, "Performance and Temperature Estimation of Induction Motor from Transient Measurement," 2020 IEEE International Conference on Power Electronics, Drives and Energy System (PEDES 2020), Jaipur, Rajasthan, India, 16 – 19 December, 2020
3. A. Ganguly, K. Goswami and **A. Kumar Sil**, "WANN and ANN based Urban Load Forecasting for Peak Load Management," 2020 IEEE Calcutta Conference (CALCON), Kolkata, India, 2020, pp. 402-406, doi: 10.1109/CALCON49167.2020.9106520.
4. N. Manna and **A.K. Sil**, “Multiple Objective Modelling by Forming Dynamic Clusters of Peak Loads and Distributed Generations for Energy Management in Grid Connected Mode”, in Proceedings of 2020 IEEE Applied Signal Processing Conference, Kolkata, India, 7-9 October, 2020, pp. 46-50. ISBN: 978-1-7281-6881-4
5. N. Manna, A. Ganguly and **A. Kumar Sil**, "A Critical Analysis for Microgrid Formation based on Hourly Load Growth and Available Renewable Energy," 2020 IEEE Calcutta Conference (CALCON), Kolkata, India, 2020, pp. 333-337, doi: 10.1109/CALCON49167.2020.9106555.
6. A. Das and S. Ray, "A Review on Diagnostic Techniques of Bearing Fault and its modeling in Induction Motor," 2020 IEEE Calcutta Conference (CALCON), 2020, pp. 502-505, doi: 10.1109/CALCON49167.2020.9106511.

## Annual Report 2020-2021

7. A. Chatterjee, S. Bhaumik, A. Naskar, N. Mondal, **D. Chatterjee** and S. Ray, "A Transformer-less Grid Interactive Converter Topology for PV based Micro Generator," 2020 IEEE Calcutta Conference (CALCON), 2020, pp. 497-501, doi: 10.1109/CALCON49167.2020.9106472.
8. A. Chatterjee, S. Bhaumik, A. Naskar, N. Mondal, **D. Chatterjee** and S. Ray, "A Transformer-less Grid Interactive Converter Topology for PV based Micro Generator," 2020 IEEE Calcutta Conference (CALCON), 2020, pp. 497-501, doi: 10.1109/CALCON49167.2020.9106472.
9. S. Ghorai and **S. Ray**, "Revisiting small signal stability analysis techniques in the context of stability study of a two-area multimachine power system," 2020 IEEE Calcutta Conference (CALCON), 2020, pp. 493-496, doi: 10.1109/CALCON49167.2020.9106547.
10. S. Ghorai, D. Majumdar, T. Jash and **S. Ray**, "PV assisted Fuzzy based EV charge scheduling for demand side energy management: a case study," 2020 IEEE Calcutta Conference (CALCON), 2020, pp. 486-492, doi: 10.1109/CALCON49167.2020.9106509.
11. Saptarshi Ray, Subrata Biswas, Tridibesh Nag, **Debashis Chatterjee** "An approach to control "Magnitude Modulation index" of Electric Spring for improved Performance", Proceedings of IEEE Applied Signal Processing Conference ASPCON 2020, Jadavpur University, Kolkata, 7th to 9 September, 2020, Pp. 193-197, DOI: 10.1109/ASPCON 49795.2020.9276676.
12. Susmita Kundu, **Debashis Chatterjee**, Krishnendu Chakrabarty "Bifurcation Control of Single Phase PWM Semi-Converter Fed DC Series Motor Drive", IEEE 1st International Conference for Convergence in Engineering (ICCE), pp 100-104, DOI: 10.1109/ICCE50343.2020.9290706, 5-6 September. 2020.
13. Boni Satya Varun Sai, Sarang A Khadtare, **Debashis Chatterjee** "An Improved MPPT Technique Under Partial Shading Condition Using Simple P&O Algorithm", IEEE International Conference on Computational Intelligence for Smart Power System and Sustainable Energy (CISPSSE), pp 1-6, 29-31 July, 2020, DOI: 10.1109/CISPSSE49931.2020.9212234
14. Bikram Das, Aniruddha Bhattacharya, **Debashis Chatterjee**, Prabir Ranjan Kasari, "Multi Reference Modulation Based Grid Integration of Cascaded Half Bridge MLI for Medium Voltage PV Application", IEEE Region 10 Symposium (TENSYP), pp 787-790, 5-7 June 2020, DOI: 10.1109/TENSYP50017.2020.9230873

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**B. Books/Monographs Edited :**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
SUSANTA RAY	Proceedings of 2020 IEEE Calcutta Conference (CALCON)	IEEE	978-1-7281-4283-8	2020
SUSANTA RAY	Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON)	IEEE	978-1-7281-6882-1	2020

**C. Seminar/Workshop/Conference/Symposium Organized:**

**(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)**

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
CALCON2020	Suparna kar Chowdhury	Proceedings of IEEE Calcutta Conference	CALCUTTA	February, 2020

**Annual Report 2020-2021**

		(CALCON) 2020		
2020 IEEE Applied Signal Processing Conference (ASPCON)	SUSANTA RAY, (DEBANGSHU DEY, SOVAN DALAI, BISWENDU CHATTERJEE)	Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON)	Kolkata	7-9 October, 2020
IEEE Distinguished Lecture on “Energy Efficiency in Smart Building Through IoT Sensor” by Prof. Saifur Rahaman, Joseph Loring Professor & Director, Virginia Tech Advanced Research Institute	SUSANTA RAY	-----	Kolkata	4 August, 2020
IEEE Distinguished Lecture on “Dynamic Estimation and Control of Power System” by Prof. Bikash C Pal, Imperial College London	SUSANTA RAY	-----	Kolkata	20 August, 2020
Faculty Development Programme on “ Important Aspects of Electrical Power & Energy	SUSANTA RAY	-----	Kolkata	30 September- 2 October, 2020
Lecture Series on 3-Phase Induction Motor	SUSANTA RAY	-----	Kolkata	26-27 August, 2020
Summer Training for budding Engineers (virtual) -Fundamentals of Electrical Engineering for Beginners	SUSANTA RAY	-----	Kolkata	2 – 23 August, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Debashis Chatterjee</b>	Invited Lecture	Recent Trends in speed Control of Electrical machines	Chaibasa Engineering College, Jharkhand	7-9 September, 2020
<b>Prof. Debashis Chatterjee</b>	Invited Lecture	Modern control techniques of PV based Converters	Gargi Memorial Institute of Technology, WB	September 2020, one day

**Annual Report 2020-2021**

<b>Prof. Debashis Chatterjee</b>	Invited Lecture	Grid Integration of Renewable sources	Dumka Engineering College, Jharkhand.	27-29 June, 2020
<b>Prof. Debashis Chatterjee</b>	Invited Lecture	Control of Electric Vehicles : The Modern Trend	JIS Engineering College	17-21 August, 2020
<b>Prof. Debashis Chatterjee</b>	Invited Lecture	Harvesting Wind Energy	Govt. College of Engineering Keonjhar, Odissa.	7-11 September, 2020
<b>SUSANTA RAY</b>	Invited Lectures	Seminar on "Principles of Rotating Machine"	JIS College of Engineering, Kalyani, Nadia, West Bengal, India	16 July, 2020 (2 hrs)
<b>SUSANTA RAY</b>	Moderator	A Tutorial on "Condition Monitoring"	Electrical Engineering Department, Netaji Subhash Engineering College, Kolkata	4 September, 2020 (3 Hrs)
<b>SUSANTA RAY</b>	Invited Lectures	Lecture on "Overview of Circuit Theory"	Gargi Memorial Institute of Technology, Baruipur, Kolkata	11 October, 2020 (1.5 Hrs)
<b>SUSANTA RAY</b>	Invited Lectures	Lecture on "Overview of Time Response Analysis"	Gargi Memorial Institute of Technology, Baruipur, Kolkata	13 December, 2020
<b>SUSANTA RAY</b>	Invited Lectures	Lecture on "Modern Approach of Electrical Machine"	Pailan College of Management & Technology (PCMT), Kolkata	29 May, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Dr Arindam Kumar Sil</b>	AICTE Training & Learning (ATAL) Academy sponsored FDP under thrust area of Artificial intelligence titled "Recent developments in Artificial intelligence for smart	Department of Chemical Engineering, MIT, Manipal	5 Days



## Annual Report 2020-2021

	and sustainable energy systems” to be held for a period of 5 days from 7th to 11th Dec. 2020		
<b>Mihir Hembram</b>	TEQIP-III sponsored Online Short Term Course and Faculty Development Programme “Power Electronics and Renewable Energy Integration in Smart Grid, Electric Vehicle(PEREISGEV 2020)”	Department of Electrical Engineering, NIT, Rourkela.	5 Days

### 6. Major Achievements of the Department during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
<b>SUSANTA RAY</b>	Best Volunteer Award, IEEE Kolkata Section	IEEE	Kolkata

## *POWER SYSTEM SECTION*

### 4. Research Activities:

#### A. Areas of Research Activities : (Broad Areas)

Power quality assessment and improvement, fault detection in transmission and distribution system, smart grid and microgrid, signal processing and artificial intelligence applications.  
Distributed generation and Microgrid, Fault analysis, Demand side management, voltage stability

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
01	03

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

1. Bikash Patel, Parthasarathi Bera, **Sunita Halder nee Dey**, "A Novel Method to Distinguish Internal and External Faults during Power Swing", in *IEEE Transactions on Power Delivery*, doi: 10.1109/TPWRD.2020.3023026, available online from September, 2020.
2. Rishiraj Sarker, Asim Datta and **Sudipta Debnath**”, FPGA based variable modulation indexed SPWM generator architecture for constant output voltage inverter *applications*”, *Microprocessors and Microsystems (Elsevier)*, Volume no. 77, page no. 1-8, September, 2020.

## Annual Report 2020-2021

3. Rishiraj Sarker, Asim Datta and **Sudipta Debnath**, "FPGA based High Definition SPWM generation with Harmonic Mitigation Property for Voltage Source Inverter Applications", IEEE Transactions on Industrial Informatics, Volume no. 17, page no. 1352-1362, February, 2021.
4. Yadala Pavankumar, Ravindra Kollu and **Sudipta Debnath**, "Multi-objective optimization of photovoltaic/wind/biomass/battery-based grid-integrated hybrid renewable energy system", IET Renewable Power Generation, Vol. no. 15 Issue 7, page no. 1528-1541, March, 2021

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Rishiraj Sarker, Asim Datta and Sudipta Debnath, "FPGA Implementation of phase disposition PWM (PD-PWM) strategy for cascaded H-Bridge Multilevel inverter (CHB-MLI)" in Proceedings of IEEE Applied Signal Processing Conference ASPCON 2020, Jadavpur University, Kolkata, 7-9 September, 2020, Pp. 80-84, DOI: 10.1109/ASPCON.49795.2020.9276676.
2. Rishiraj Sarker, Asim Datta and Sudipta Debnath, "A modified PWM Technique to reduce harmonic content of multilevel NPC topology for medium voltage electric vehicle (EV) applications", Michael Faraday IET International Summit (MFIIS 2020), IET Kolkata Network, 3 – 4 October 2020.
3. Biswapriya Chatterjee and Sudipta Debnath "Cross-correlation based single-phase fault location scheme for transmission lines using one-end voltage" Michael Faraday IET International Summit (MFIIS 2020), IET Kolkata Network, 3 – 4 October, 2020.
4. Monideepa Paul and Sudipta Debnath, "ANFIS based single line to ground fault location estimation for transmission lines" Michael Faraday IET International Summit (MFIIS 2020), IET Kolkata Network, 3– 4 October 2020, 978-1-83953-523-9.
5. Monideepa Paul and Sudipta Debnath, "Wavelet Based Single Ended Scheme for Impedance Fault Classification in Transmission Lines", IEEE International Conference on Smart Technologies in Computing, Electrical and Electronics (ICSTCEE), 9th – 10th October 2020, Bengaluru, Karnatak, 20257450, DOI: 10.1109/ICSTCEE49637.2020.9277148.
6. Swetalina Bhuyan, Sunita Halder nee Dey, Subrata Paul, 'Role of demand side management in automatic load frequency control', The first International conference on Emerging Frontiers in electrical and electronic Technologies(ICEFEET-2020), NIT , Patna 10-11 July , 2020.
7. Sudhakar Reddy Sama, Subrata Paul, Sunita Halder nee Dey, 'An improved 3-phase load flow for DG integrated distribution systems based on PSO', The first International conference on Emerging Frontiers in electrical and electronic Technologies(ICEFEET-2020), NIT , Patna 10-11 July , 2020.
8. Barnali Motling, Subrata Paul, Sunita Halder nee Dey, 'Siting and sizing of DG unit to minimize loss in distribution network in the presence of dg generated harmonics', The first International conference on Emerging Frontiers in electrical and electronic Technologies(ICEFEET-2020), NIT , Patna 10-11 July , 2020.
9. Swetalina Bhuyan, Sunita Halder nee Dey, Subrata Paul, Sabita Chaine, 'Analysis of Frequency Regulation for a Hydro-Thermal System with ALFC-DR Model', International Conference on Power Electronics and Energy (ICPEE-2021), 2-3 January 2021, KIIT Deemed to be University, Bhubaneswar, Odisha.
10. Chandan Jana, Mousumi Jana Bala, Swapan Kumar Goswami, "Finding of the Probable Size and Location of Distributed Generation in Unbalanced Distribution System with Demand Uncertainty", 2020 IEEE Calcutta Conference (CALCON), pages 417-420, IEEE, 2020 DOI: 10.1109/CALCON49167.2020.9106559
11. Rajashree Dhua, Swapan Kumar Goswami, Debashis Chatterjee, "An Optimized Frequency and Voltage Control Scheme for Distributed Generation Units of an Islanded Microgrid" 2021 Innovations in Energy Management and Renewable Resources (52042), pages 1-6, IEEE, 5-7 February, 2021. DOI: 10.1109/IEMRE52042.2021.9386729

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year

#### F. Invited Lectures Delivered/Sessions Chaired:

## Annual Report 2020-2021

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Sudipta Debnath	Session Chair	Michael Faraday IET International Summit	Kolkata	03-04 October, 2020

### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Swetalina Bhuyan (RS)	Role of demand side management in automatic load frequency control	ICEFEET-2020	NIT , Patna	10 -11 July, 2020
Sudhakar Reddy Sama(RS)	An improved 3-phase load flow for DG integrated distribution systems based on PSO	ICEFEET-2020	NIT , Patna	10 -11 July, 2020
Barnali Motling(RS)	Siting and sizing of DG unit to minimize loss in distribution network in the presence of dg generated harmonics	ICEFEET-2020	NIT , Patna	10 -11 July, 2020
Swetalina Bhuyan(RS)	Analysis of Frequency Regulation for a Hydro-Thermal System with ALFC-DR Model	ICPEE-2021	KIIT Deemed to be University, Bhubaneswar, Odisha	2 -3 January, 2021

### H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Madhumita Mandal	Restructured Electricity Supply Systems: Operation and Planning	MNIT Jaipur	15-19 March, 2021
Madhumita Mandal	Power Electronic challenges and solutions for the integration of Electric Vehicle Charging Network	IIT (BHU) Varanasi	24-26 March, 2021
Swetalina Bhuyan (RS)	ICEFEET-2020	NIT , Patna	10 -11 July, 2020
Sudhakar Reddy Sama(RS)	ICEFEET-2020	NIT , Patna	10 -11 July, 2020
Barnali Motling(RS)	ICEFEET-2020	NIT , Patna	10 -11 July, 2020
Swetalina Bhuyan(RS)	ICPEE-2021	KIIT Deemed to be University, Bhubaneswar, Odisha	2 -3 January, 2021

## Annual Report 2020-2021

### ELECTRONICS & TELECOMMUNICATION ENGINEERING

Phone: 033-2457-2404/2402

033-2414-6002

H.O.D : Prof. Sheli Sinha Chaudhuri

Prof. Ananda Shankar Chowdhury (since 3.7.2020)

E-mail: hodetce@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

To promote and sustain the departmental teaching and research to meet the challenges of industry and academics for the societal benefits.

##### B. Mission:

**M1:** Develop students with strong foundations in core engineering subjects

**M2:** Empower students with the latest technology for a sustainable teaching- learning process

**M3:** Enhance academic and industrial collaboration to make the students acquainted with the changing global needs

**M4:** Enlighten the students with ethical and legal aspects of the profession

#### 2. Academic Activities:

##### A. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.E. Electronics and Tele-communication Engineering	4	1 <sup>st</sup> year	91
		2 <sup>nd</sup> year	102
		3 <sup>rd</sup> year	83
		4 <sup>th</sup> year	75
M.E. Electronics and Tele-communication Engineering	2	1 <sup>st</sup> year	33
		2 <sup>nd</sup> year	29
M.Tech. VLSI and Microelectronics	3	1 <sup>st</sup> year	22
		2 <sup>nd</sup> year	18
		3 <sup>rd</sup> year	11
M. Tech. Intelligent Automation and Robotics	3	1 <sup>st</sup> year	0
		2 <sup>nd</sup> year	0
		3 <sup>rd</sup> year	16

##### B. New Programme/Course introduced during the year by the Department/

Programme Name	Course Name	Date of Introduction	No. of Students enrolled
----------------	-------------	----------------------	--------------------------

## Annual Report 2020-2021

UG Multi-departmental optional course	Brain-Computer Interfaces (Teacher: Prof. Amit Konar, ETCE Dept.)	2 January, 2021	18 (10 Information Tech. dept. + 8 Civil Engg. dept.)
---------------------------------------	---	-----------------	---

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
12	2	3+1 (DST Inspire Faculty)	17

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

1. 5G Small Cells Deployment Issues
2. Antenna Optimization
3. Biomedical Image/Signal Processing
4. Brain-Computer Interfaces
5. Cognitive Intelligence
6. Computer Vision
7. Cybernetics
8. Cyber-Physical Systems
9. Data Science and Artificial Intelligence
10. Digital signal processing
11. Digital Watermarking and Data security
12. Electronic and Optoelectronic Devices
13. Error Correcting Codes and Information Security
14. Error correcting coding techniques
15. Fractal Filter
16. Intelligent Transport System
17. Massive MIMO Beam Forming
18. MEMs, NEMs and Gas sensors
19. Microwave
20. Microwave passive device
21. Millimeter wave antenna
22. Mobile Ad-hoc Networks (MANET)
23. Multimedia Analysis
24. Nanodevices and Low power VLSI circuits
25. NOMA- Non orthogonal Multiple Access
26. Optical Communication
27. Pattern Recognition
28. Real time video communication over cognitive radio
29. RFID and its Applications
30. RF energy harvesting in wireless networks
31. RF VLSI
32. Security in wireless networks
33. Semiconductor devices and circuits
34. Signal Processing
35. Slotted array antenna
36. Smart Antenna Beamshaping in indoor environment
37. Two-dimensional (2D) materials based Electronic and Optoelectronic devices

## Annual Report 2020-2021

- 38. Wireless Body Area Networks
- 39. Wireless communication
- 40. Wireless Sensor Networks (WSN)

### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Miniature Antenna Development For Communication Between Airborne Drones In Swarm	Individual	Bhaskar Gupta  Co PI : Sayan Chatterjee	Indo Czech Bilateral Cooperation sponsored by Department of Science and Technology, Govt. of India	3 years @2020
An Engineering Approach for the design of Heart Sound Diagnosis and Anomaly Detection: An IOT based Platform	Individual	Prof. Iti Saha Misra	RUsA-2.0	One year  Ended March 2021
Neuro-Fuzzy Synergism based POLSAR Image Classification	Individual	Sheli Sinha Chaudhuri	RESPOND, ISRO	24 months.  November 2019- November, 2021
Cost Effective and Manpower Efficient Real-Time Implementation of RFID Based Surveillance System for Poultry Based Industry in Rural/ Urban Region to Solve the Avian Influenza/Bird Flu Problem	DST-WB	Subir Kumar Sarkar	15.908 lakhs	(2018-Ongoing)
Adaptive Self Correcting Antenna Array System in Cooperative Communication for	Individual	PI: Sayan Chatterjee  Co PI: Sheli Sinha Chaudhuri	SERB, Core Research Grant , Department of Science and Technology, Govt. of India	3 years @2021

**Annual Report 2020-2021**

Different Disaster Management Scenarios				
Vision guided Auto-Lander for Planetary mission	Individual	Amitava Gupta Co PI : Sayan Chatterjee	Indian Space Research Organization (ISRO)	3 years @ 2019
Design and Development of X band Dual Polarized Waveguide Slotted Array Antenna	Individual	PI: Sayan Chatterjee Co-PI: Chandrima Mondal	Indian Space Research Organization (ISRO)	3 years @ 2017
Design and Development of Adaptive Phased Array Antenna System for Dynamic Air Traffic RADAR used in Disaster Management	Individual	PI: Sayan Chatterjee	Major research project , RUSA, JU	1 year @2019 extended to 2021
Versatile Data Acquisition & signal processing platform for Seismic Application: Design of RF subsystem	Individual	PI: Sayan Chatterjee Co-PI: Chandrima Mondal	MeITy, Govt. of India	6 years @2015
Graphene and Two-Dimensional (2D) Transition Metal Dichalcogenides (TMDCs) Materials based Hybrid Photodetectors	Individual	Divya Somvanshi	DST-India	2017-2022

**C. Doctoral Research Activities:**

**Prof. Amit Konar**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
2	2

**Prof. Ananda Shankar Chowdhury**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
--	7

**Prof. Bhaskar Gupta**

### Annual Report 2020-2021

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	1

#### **Prof. Chayanika Bose**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
01	00
##	

## [Shubhasree Biswas Sett (Index No. 166/13/E) defended thesis on Feb 02, 2021]

#### **Prof. Iti Saha Misra**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	1

#### **Prof. Manotosh Biswas**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	3

#### **Prof. Mrinal Kanti Naskar**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	NIL

#### **Prof. P. Venkateswaran**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	NIL

#### **Prof. Sheli Sinha Chaudhuri**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
Nil	5

#### **Prof. Subir Kumar Sarkar**



## Annual Report 2020-2021

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	2

### **Prof. Sudhabindu Ray**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	NIL

### **Prof. Sudipta Chattopadhyay**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	NIL

### **Dr. Sayan Chatterjee**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
2	5

### **Dr. Pratyusha Rakshit**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	1

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**  
**(Name of authors, Title of the article, Name of the Journal, Volume No.,Page No/Article No., Year of publication)**

#### **Prof. Amit Konar**

1. Lidia Ghosh, Sriparna Saha, **Amit Konar**, "Decoding emotional changes of android-gamers using a fused Type-2 fuzzy deep neural network," *Comput. Hum. Behav*, vol. 116, no. 106640, March 6, 2021.
2. Lidia Ghosh, Sriparna Saha, **Amit Konar**, "Bi-directional Long Short-Term Memory model to analyze psychological effects on gamers," *Appl. Soft Comput*, Vol. 95, No.106573, 24 July, 2020.
3. Arnab Rakshit, **Amit Konar**, Atulya K. Nagar, "A hybrid brain-computer interface for closed-loop position control of a robot arm," *IEEE CAA J. Autom. Sinica*, vol. 7, no. 5, pp. 1344-1360, 3 August, 2020.

## Annual Report 2020-2021

4. Amiyangshu De, Souvik Biswas, **Amit Konar**, and Lidia Ghosh, "A functional-near-infrared-spectroscopy-based evaluation of cognitive lagging from prefrontal hemodynamics," *IEEE Sensors Letters*, vol. 4, no. 6, pp: 1-4, 25 May, 2020.
5. Arup Kumar Sadhu, Amit Konar, "An Efficient Computing of Correlated Equilibrium for Cooperative Q -Learning-Based Multi-Robot Planning," *IEEE Trans. Syst. Man Cybern. Syst. Vol. 50*, no. 8, pp: 2779-2794, 8 August, 2020.
6. Lidia Ghosh, Amit Konar, Pratyusha Rakshit, Atulya K. Nagar, "Mimicking Short-Term Memory in Shape-Reconstruction Task Using an EEG-Induced Type-2 Fuzzy Deep Brain Learning Network," *IEEE Trans. Emerg. Top. Comput. Intell. , Vol. 4*, no. 4, pp. 571-588, 4 August, 2020.
7. Biswadeep Chakraborty, Lidia Ghosh, Amit Konar, "Designing Phase-Sensitive Common Spatial Pattern Filter to Improve Brain-Computer Interfacing," *IEEE Trans. Biomed. Eng., Vol.67*, no.7, pp: 2064-2072, 7 July, 2020.
8. Mousumi Laha, Amit Konar, Pratyusha Rakshit, Atulya K. Nagar, "Exploration of Subjective Color Perceptual-Ability by EEG-Induced Type-2 Fuzzy Classifiers," *IEEE Trans. Cogn. Dev. Syst*, vol. 12, no. 3, pp: 618-635, 3 September, 2020.

### **Prof. Ananda Shankar Chowdhury**

9. Abhimanyu Sahu, **Ananda S. Chowdhury**: Multiscale Summarization and Action Ranking in Egocentric Videos, *Pattern Recognition Letters*, Elsevier, **133**, pp. 256 – 263, May 2020. [Impact Factor: 3.756]
10. Abhimanyu Sahu, **Ananda S. Chowdhury**: Summarizing Egocentric Videos using Deep Features and Optimal Clustering, *Neurocomputing*, Elsevier, **398**, pp.209 – 221, July 2020. [Impact Factor: 5.719]
11. Arindam Sikdar, **Ananda S. Chowdhury**: An Adaptive Training-less Framework for Anomaly Detection in Crowd Scenes, *Neurocomputing*, Elsevier, **415**, pp. 317 – 331, November 2020. [Impact Factor: 5.719]
12. Rukhmini Roy, Pranavesh Banerjee, **Ananda S. Chowdhury**: A Level Set based Unified Framework for Pulmonary Nodule Segmentation, *IEEE Signal Processing Letters* **27**, 1465-1469, 2020. [Impact Factor: 3.109]
13. Aritra Mukherjee, Souryadip Das, Jasorsi Ghosh, **Ananda S. Chowdhury**, Sanjoy K. Saha: Semantic Segmentation of Surface from Lidar Point Cloud, *Multimedia Tools and Applications*, Springer, 2020. (<https://doi.org/10.1007/s11042-020-09841-2>) [Impact Factor: 2.75]

### **Prof. Bhaskar Gupta**

14. Arup Saha, Bhaskar Gupta, Asoke Kumar Datta, "Classification of Speech Signal using Phase Space Analysis – A case study in Bangla", published in *IJSER* Volume 12, Issue 2, February 2021 Edition.
15. Suman Pradhan and Bhaskar Gupta, "Design and Analysis of Pentaband Annular Microstrip Antenna using Multiport Network Modeling" accepted in *Frequenz*, February, 2021
16. ArdhenduKunduSathishVangaruSomnath Bhattacharyya Amirul I. MallickBhaskar Gupta "Electromagnetic Irradiation Evokes Physiological and Molecular Alterations in Rice" published in *BioElectroMagnetics* on 11 January, 2021 <https://doi.org/10.1002/bem.22319>.
17. Ardhendu Kundu, Amirul I. Mallick, Bhaskar Gupta "Contrast in Specific Absorption Rate for a Typical Plant Model due to Discrepancy among Global and National Electromagnetic Standards", published in *Progress In Electromagnetics Research M* 99:139-152, DOI:10.2528/PIERM20090404
18. Ardhendu Kundu, SathishVangaru, Somnath Bhattacharyya, Amirul I. Mallick, Bhaskar Gupta, "Erratum: Electromagnetic Irradiation Evokes Physiological and Molecular Alterations in Rice", *Bioelectromagnetics* (DOI:10.1002/bem.22351)
19. Bhattacharyya, K. Patra and B. Gupta, "Design of HIS-backed Miniaturized Cross Slotted Antenna for Circular Polarization Using Modal Analysis: A Novel Approach", accepted for publication in the *Radioengineering Journal*, 2021.
20. A. Bhattacharyya, J. Pal, K. Patra and B. Gupta, "Bandwidth-Enhanced Miniaturized Patch Antenna Operating at Higher Order Dual-Mode Resonance Using Modal Analysis," in *IEEE Antennas and Wireless Propagation Letters*, vol. 20, no. 2, pp. 274-278, February, 2021.

## Annual Report 2020-2021

21. Sayan Sarkar, Bhaskar Gupta, “**A Dual-Band Fabry-Pérot Cavity Antenna with a Single Partially Reflecting Surface and Reduced Cavity Height for WLAN Applications,**” Radioengineering, 2021.
22. Sayan Sarkar Bhaskar Gupta, “**A tri-band spoof surface plasmon polaritons based antenna for endfire radiation**” 30 March 2021, International Journal of RF and Microwave Computer-Aided Engineering, <https://doi.org/10.1002/mmce.22668>
23. Ardhendu Kundu, Sathish Vangaru, Sucharita Bhowmick, Bhaskar Gupta, **One-time Electromagnetic Irradiation Modifies Stress-sensitive Gene Expressions in Rice Plant**, DOI: 10.1002/bem.22374 published in Bioelectromagnetics, September, 2021.
24. Amartya Banerjee, Kaushik Patra, Sayan Chatterjee, Bhaskar Gupta, Anup Kumar Bandyopadhyay, “**Theoretical Investigations on CPW-Fed Single and Dual-Polarized Slot Radiators Using Schelkunoff’s Biconical Antenna Analysis**” published in Radioengineering journal, Vol. 29, No. 2, June, 2020.
25. J. Pal, K. Patra and B. Gupta, “**Antenna-Independent Frequency- and Time-Domain Representation of Wireless Channel,**” in IEEE Antennas and Wireless Propagation Letters, vol. 19, no. 8, pp. 1447-1451, August. 2020, doi: 10.1109/LAWP.2020.3005419.
26. Sayan Sarkar, Bhaskar Gupta, “**A Dual Band Circularly Polarized Antenna with a Dual Band AMC Reflector for RFID Readers**”, IEEE Antennas and Wireless Propagation Letters, vol. 19, no. 5, pp. 796-800, May 2020, DOI: 10.1109/LAWP.2020.2980325.
27. Sayan Sarkar and Bhaskar Gupta, “**Artificial magnetic conductor with self-complementary unit cells having high angular stability**”, IET Electronics Letters, vol. 56, no. 14, pp. 704-706, July 2020, DOI: 10.1049/el.2020.1008
28. Sayan Sarkar and Bhaskar Gupta, “**Artificial magnetic conductor with self-complementary unit cells having high angular stability**”, IET Electronics Letters, vol. 56, no. 14, pp. 704-706, July 2020, DOI: 10.1049/el.2020.1008
29. Sudipta Maity, Rinki Ghosal and Bhaskar Gupta, “**Modal Charts of Cylindrical Dielectric Resonator,**” accepted for publication in a future issue of the IEEE Microwave Magazine as an Applications Note on 17 December, 2020.
30. Pal J, Patra K, Gupta B.,” **A TM<sub>03</sub> mode reduced side lobe high-gain printed antenna array in K band for UDN and IoT applications in 5G.**” Int J RF Microw Comput Aided Eng. 2020; e22414. <https://doi.org/10.1002/mmce.22414>

### Prof. Chayanika Bose

31. Chattopadhyay, A., Bose, C. and Sarkar, C.K. Compact Modeling of Graded N-Channel Independent Gate FET with Underlaps, Spacer and S/D Straggle for Low Power Application. *Silicon*, Volume 13 (2), pp. 375–387, 02 February, 2021. <https://doi.org/10.1007/s12633-020-00424-2>
32. Ankush Chattopadhyay, Manash Chanda, Chayanika Bose, Chandan K. Sarkar, “Analytical modeling of linearity and intermodulation distortion of 3D gate all around junctionless (GAA - JL) FET, *Superlattices and Microstructures*, Volume 150, Article no. 106788, February 01, 2021, doi:<https://doi.org/10.1016/j.spmi.2020.106788>
33. Banibrata Bag, Akinchan Das, Chayanika Bose, and Aniruddha Chandra, "Improving the performance of a DF relay-aided FSO system with an additional source-relay mmWave RF backup," *J. Opt. Commun. Netw.* Volume 12, pp. 390-402, 1 December, 2020.
34. Madhupriya Samanta, Sk Ijaz Ahmed, Kalyan K. Chattopadhyay, Chayanika Bose, “Role of various transport layer and electrode materials in enhancing performance of stable environment-friendly Cs<sub>2</sub>TiBr<sub>6</sub> solar cell”, *Optik*, Volume 217, Article No. 164805, 01 September, 2020.

### Prof. Iti Saha Misra

35. Sk Intiaj, Sandipan Bhattacharya, Iti Saha Misra, “Reconfigurable method of smart antenna beam shaping in indoor fading environment using adaptive algorithms: An exhaustive experimental study”, RF and Microwave Computer Aided Design, Wiley, 1-24, 19 Oct 2020, DOI: 10.1002/mmce.22482 (SCI Journal)

## Annual Report 2020-2021

36. Sk Intiaj, Sandipan Bhattacharya, Iti SahaMisra, "Reconfigurable method of smart antenna beam shaping in indoor fading environment using adaptive algorithms: An exhaustive experimental study", *RF and Microwave Computer Aided Design*, Wiley, 1-24, 19 October, 2020, DOI: 10.1002/mmce.22482 (SCI Journal)

### Prof. Manotosh Biswas

37. M. Biswas, S. Banik and M. Dam, "Li's Formula Extended to Determine Accurate Resonant Frequency of a Rectangular Patch Antenna in Multi-dielectric Layers", *Progress In Electromagnetics Research M*, vol. 99, pp. 177-189, 2021.
38. M. Biswas and M. Dam, "Investigation of equilateral triangular patch antenna covered with several dielectric layers: theoretical and experimental study", *Journal of Electromagnetic Waves and Applications*, vol. 35, pp. 1770-1801, 2021.

### Prof. Mrinal Kanti Naskar

39. R N Biswas, S K Mitra, M K Naskar, "Wireless Node Localization under Hostile Radio Environment using Smart Antenna", *Wireless Personal Communications*, vol. 116, pp. 1815-1836, 2021.
40. S Mitra, K C Santosh, M K Naskar, "Niblack binarization on document images: Area efficient, low cost, and noise tolerant stochastic architecture", *International Journal of Pattern Recognition and Artificial Intelligence*, vol. 35, no. 04, pp. 2154013-1 to 2154013-25, 2021.
41. Chandrani Sadhukhan, Swarup Kumar Mitra, Ranjib Biswas and Mrinal Kanti Naskar, "Tool condition monitoring: unscented Kalman filter for tool flank wear estimation in turning of Inconel 718", *Machining Science and Technology an International Journal*, Taylor & Francis online, vol. 25, pp. 331-348, January, 2021.
42. Chandrani Sadhukhan, Swarup Kumar Mitra, Mrinal Kanti Naskar and Mohsen Sharifpur, "Fault diagnosis of nonlinear hybrid system using adaptive unscented Kalman filter bank", *Engineering with Computers An International Journal for Simulation-Based Engineering*, Springer Nature, published online on 3 January, 2021.

### Prof. P. Venkateswaran

43. K. Mathur, P. Venkateswaran and R. Nandi, "A Linear Electronically Tunable Sinusoid Oscillator", *IEICE Electronics Express*, Vol. 17 (2020), No. 22, pp. 1-3, 2020

### Prof. Sheli Sinha Chaudhuri

44. Kyamelia Roy, Sheli Sinha Chaudhuri and Sayan Pramanik, "Deep learning based real-time Industrial framework for rotten and fresh fruit detection using semantic segmentation", *Microsystem Technologies*, <https://doi.org/10.1007/s00542-020-05123-x>, Volume 27(9), Pages: 3365 – 3375, November 2020, **Electronic ISSN**1432-1858, **Print ISSN**0946-7076
45. Sriparna Banerjee and Sheli Sinha Chaudhuri, "Bacterial Foraging-Fuzzy synergism based Image Dehazing", *Multimedia Tools and Applications*, Volume 80(3), Pages: 8377-8421, November, 2020. DOI: 10.1007/s11042-020-09794-6 **Electronic ISSN**1573-7721, **Print ISSN**1380-7501
46. Sriparna Banerjee and Sheli Sinha Chaudhuri, "Nighttime Image-Dehazing: A Review and Quantitative Benchmarking" *Archives of Computational Methods in Engineering*, Vol.28(4), Pages: 2943 – 2975, September 2020. DOI: 10.1007/s11831-020-09485-3, **Electronic ISSN**1886-1784, **Print ISSN**1134-3060
47. Arijit Majumdar, Soumya Chatterjee, Sayan Chatterjee and Sheli Sinha Chaudhuri, "An ambient temperature dependent small signal model of GaN HEMT using method of curve fitting", *International Journal of RF and Microwave Computer-Aided Engineering*, September 2020. DOI:10.1002/mmce.22434, Volume 30 (12), Pages: Online ISSN:1099-047x.

### Prof. Subir Kumar Sarkar

48. Savio Jay Sengupta, Bijoy Goswami, Pritam Das, Subir Kumar Sarkar "A Noise Immune Double Suspended Gate MOSFET for Ultra Low-Power Applications" *Silicon* <https://doi.org/10.1007/s12633-021-01283-1>
49. Ghosh, S., Venkateswaran, P. and Sarkar, Subir Kumar Sarkar. (2021), "Analysis of circuit

## Annual Report 2020-2021

- performance of Ge-Si hetero structure TFET based on analytical model", *Circuit World*, ISSN: 0305-6120. <https://doi.org/10.1108/CW-08-2020-0175>
50. S Biswas, S Nath, J K Sing, S.K. Sarkar "Extended nucleic acid memory as the future of data storage technology", *International Journal of Nano and Biomaterials*, 2020 Vol.9 No.1/2, pp.2 – 17, May, 2020.
  51. Priyanka Saha and Subir Kumar Sarkar, "Drain current characterization of Dielectric Modulated Split Gate TFET for bio-sensing application", *Materials Science in Semiconductor Processing*, Elsevier, vol. 124, 105598, November, 2020
  52. Komal Kumari, Abir Jana, Anup Dey, Tapas Chakrabarti and Subir Kumar Sarkar, "Lead free  $\text{CH}_3\text{NH}_3\text{SnI}_3$  based perovskite solar cell using ZnTe nano flowers as hole transport layer", *Optical Materials*, Elsevier, [doi.org/10.1016/j.optmat.2020.110574](https://doi.org/10.1016/j.optmat.2020.110574), November, 2020
  53. Priyanka Saha and Subir Kumar Sarkar, "Explicit threshold voltage modeling insight for short channel characterization of WFE Elliptical GAA strained-Si MOSFET", *Journal of Electronic Materials*, Springer, vol. 49, pp.7486-7494, (DOI: 10.1007/s11664-020-08503-1, September, 2020.
  54. Sourav Guha, Prithviraj Pachal, Sudipta Ghosh and Subir Kumar Sarkar, "Analytical model of a novel double gate metal-infused stacked gate-oxide tunnel field-effect transistor (TFET) for low power and high-speed performance", *Superlattices and Microstructures*, Volume 146, 2020, ISSN 0749-6036, [doi.org/10.1016/j.spmi.2020.106657](https://doi.org/10.1016/j.spmi.2020.106657).
  55. Anup Dey and Subir Kumar Sarkar, "Fabrication and Application of  $\text{TiO}_2$  based thin film capacitive bio-sensor towards fruit freshness detection on silicon substrate", *Silicon*, Springer, [doi.org/10.1007/s12633-020-00638-4](https://doi.org/10.1007/s12633-020-00638-4), August, 2020
  56. Anup Dey and Subir Kumar Sarkar, "Room Temperature ZnO and Au ZnO Quantum Dots thin film Gas Sensor Fabrication for Detecting of Volatile Organic Compound Gases", *IEEE Sensors Journal*, vol. 20, issue 21, pp.12602-12609, November, 2020
  57. Priyanka Saha and Subir Kumar Sarkar, "Analytical modeling of Ion sensitive broken gate TFET for pH sensing applications", *IEEE Sensors Letters*, Vol. 4, No.7, pp. 1-4, July 2020
  58. Arpita Ghosh and Subir Kumar Sarkar, "Performance investigation of nanoscale reversible logic gates designed with SE-TLG Approach", *International Journal of Electronics*, vol.107, issue 11, pp. 1735-1753, DOI: 10.1080/00207217.2020.1756433, May, 2020

### Prof. Sudipta Chattopadhyay

59. Panda, P.K., **Chattopadhyay, S.**, A secure mutual authentication protocol for IoT environment, *Journal of Reliable Intelligent Environments*, Springer, Vol 6, pp. 79–94, June, 2020. <https://doi.org/10.1007/s40860-020-00098-y>
60. Panda, P.K., **Chattopadhyay, S.**, An improved authentication and security scheme for LTE/LTE-A networks, *Journal of Reliable Intelligent Environments*, Springer, Vol 11, pp. 2163–2185, May, 2020. <https://doi.org/10.1007/s12652-019-01248-8>
61. Prabhat Kumar Panda and **Sudipta Chattopadhyay**, An enhanced mutual authentication and security protocol for IOT and cloud server, *Information Security Journal: A Global Perspective*, Taylor and Francis, March, 2021. <https://doi.org/10.1080/19393555.2020.1871534>
62. Thakur, C., **Chattopadhyay, S.**, Secrecy performance of a novel energy efficient hybrid CIoT network with beacon-aided RF energy harvesting under dissimilar fading environments," *Journal of Reliable Intelligent Environments*, Springer, 2021 (In press)

### Dr. Jaydeb Bhaumik

63. P. Mitra, **J. Bhaumik** and A. Sarkar "Decoupling Capacitor Estimation and Allocation using Optimization Techniques for Power Supply Noise Reduction in System-on-Chip," *Journal of Electronic Testing*, vol. 37, pp. 151–155, March, 2021.
64. P. Pal, B. Jana and **J. Bhaumik**, "A secure reversible color image watermarking scheme based on LBP, Lagrange interpolation polynomial and weighted matrix," *Multimedia Tools and Applications*, vol. 80, pp. 21651–21678, March, 2021.

## Annual Report 2020-2021

65. S. Tripathi, R. Maity, J. Jana, J. Samanta and **J. Bhaumik**, "FPGA Based Low Area Multi-bit Adjacent Error Correcting Codec for SRAM Application," *Journal of Radioelectronics and Communications Systems*, Springer, vol. 63, no 10, pp. 543-552, December, 2020.
66. R. Maity, S. Tripathi, J. Samanta and **J. Bhaumik**, "Lower Complexity Error Location Detection Block of Adjacent Error Correcting Decoder for SRAMs," *IET Computers & Digital Techniques*, vol. 14, no. 5, pp. 210-216, September, 2020.

### Dr. Sayan Chatterjee

67. Arijit Majumdar, Soumyo Chatterjee, Sayan Chatterjee, Sheli Sinha Chaudhari, Dipak Ranjan Poddar, "An ambient temperature dependent small signal model of GaN HEMT using method of curve fitting" *International Journal of RF and Microwave Computer-Aided Engineering*, DOI: 10.1002/mmce.22434, Vol 30, Issue 12, 2020
68. Amartya Banerjee, Kaushik Patra, Sayan Chatterjee, Bhaskar Gupta, Anup Kumar Bandyopadhyay, "Theoretical Investigations on CPW-Fed Single and Dual-Polarized Slot Radiators Using Schelkunoff's Biconical Antenna Analysis", *Radioengineering*, Vol. 29, No. 2, pp no 305-312 June, 2020.
69. Sourav Das Chowdhury, Bhaswar Dutta Gupta, Sayan Chatterjee, Ranjan Sen and Mrinmay Pal, "Explosion induced rogue waves and chaotic multi-pulsing in a passively mode-locked all-normal dispersion fiber laser", *Journal of Optics*, Volume 22, Number 6, May, 2020.

### Dr. Divya Somvanshi

70. S. Chowdhury, P Venkateswaran, **Divya Somvanshi**, A systematic study on the electronic structure of 3d, 4d, and 5d transition metal-doped WSe<sub>2</sub> monolayer, *Superlattices and Microstructures*, 148, 106746, 2020.
71. **Divya Somvanshi**, Emanuel Ber, Connor Scott Bailey, Eric Pop, and Eilam Yalon, Improved Current Density and Contact Resistance in Bilayer MoSe<sub>2</sub> Field Effect Transistors by AlO<sub>x</sub> Capping, *ACS Applied Materials & Interface*, 12, 32, 36355–36361, 2020.
72. H. Ghimire, PVV Jayaweera, **Divya Somvanshi**, Y. Lao, AGU Perera, Recent Progress on Extended Wavelength and Split-Off Band Heterostructure Infrared Detectors, *Micromachines*, 11(6), 547, 2020.

### Mr. Nirmoy Modak

73. Maity, Shovan and **Modak, Nirmoy** and Yang, David and Nath, Mayukh and Avlani, Shitij and Das, Debayan and Danial, Josef and Mehrotra, Parikha and Sen, Shreyas, "Sub- $\mu$ WRCmm: 415-nW 1–10-kb/s Physically and Mathematically Secure Electro-Quasi-Static HBC Node for Authentication and Medical Applications," in *IEEE Journal of Solid-State Circuits*, vol. 56, no. 3, pp. 788-802, March 2021, doi: 10.1109/JSSC.2020.3041874.
74. Das, Debayan and Danial, Josef and Golder, Anupam and **Modak, Nirmoy** and Maity, Shovan and Chatterjee, Baibhab and Seo, Dong-Hyun and Chang, Muya and Varna, Avinash L. and Krishnamurthy, Harish K. and Mathew, Sanu and Ghosh, Santosh and Raychowdhury, Arijit and Sen, Shreyas, "EM and Power SCA-Resilient AES-256 Through  $>350\times$  Current-Domain Signature Attenuation and Local Lower Metal Routing," in *IEEE Journal of Solid-State Circuits*, vol. 56, no. 1, pp. 136-150, Jan. 2021, doi: 10.1109/JSSC.2020.3032975.

### Dr. Pratyusha Rakshit

75. **Pratyusha Rakshit**, Onintze Zaballa, Aritz Pérez, Elisa Gómez-Inhieto, Maria T. Acaturri-Ayesta, and Jose A. Lozano, "A Machine Learning Approach to Predict Healthcare Cost of Breast Cancer Patients," *Scientific Reports, Springer Nature*, vol. 11, no. 12441, June, 2021, <https://doi.org/10.1038/s41598-021-91580-x>.
76. Lidia Ghosh, Amit Konar, **Pratyusha Rakshit**, and Atulya K. Nagar, "Mimicking Short-Term Memory in Shape-Reconstruction Task Using an EEG-Induced Type-2 Fuzzy Deep Brain Learning Network," *IEEE Transactions on Emerging Topics in Computational Intelligence*, vol. 4, no. 4, August, 2020, pp. 571 – 588.

## Annual Report 2020-2021

### E Research Articles Published in Edited Volumes during the year: (Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

#### Prof. P. Venkateswaran

1. A. Banerjee, A. Nilhani, S. Dhabal, and P. Venkateswaran, "A Novel Sound Source Localization Method using a Global-best Guided Cuckoo Search Algorithm for Drone-based Search and Rescue Operations", Chapter No. 15, **Unmanned Aerial Systems: Theoretical Foundation and Applications, Book Series: Advances in Nonlinear Dynamics & Chaos**, Elsevier, pp. 375 – 416, ISBN-978-0-12-820276-0, January, 2021.

#### Prof. Sheli Sinha Chaudhuri

2. Kyamelia Roy, Sayan Pramanik, **Sheli Sinha Chaudhuri**, "Unsupervised Machine Learning Algorithm Based Rotten Fruit Segmentation" *Advances in Smart Communication Technology and Information Processing*, Soumen Banerjee, Jyotsna K Mandal, Springer, pp. 157-169, February 2021. **eBook ISBN**978-981-15-9433-5, **DOI** 10.1007/978-981-15-9433-5, **Hardcover ISBN** 978-981-15-9432-8
3. Kyamelia Roy, **Sheli Sinha Chaudhuri**, Soumi Bhattacharjee, Srijita Manna, "Classification of Citrus Fruits and Prediction of Their Largest Producer Based on Deep Learning Architectures", *Advances in Smart Communication Technology and Information Processing*, Eds. Soumen Banerjee, Jyotsna K Mandal, Springer Singapore, pp. 147-155, February, 2021. **eBook ISBN**978-981-15-9433-5, **DOI** 10.1007/978-981-15-9433-5, **Hardcover ISBN** 978-981-15-9432-8
4. Kyamelia Roy, **Sheli Sinha Chaudhuri**, Probhakar Roy, Sankhadeep Chatterjee, Soumen Banerjee, "Transfer Learning Coupled Convolution Neural Network in detecting Retinal Diseases using OCT images", *Intelligent Computing: Image Processing Based Applications*, Eds. Jyotsna K Mandal, Soumen Banerjee, Springer, Volume 1157, pp.153-173, June 2020, **eBook**ISBN:978-981-15-4288-6, **DOI** 10.1007/978-981-15-4288-6

#### Prof. Subir Kumar Sarkar

5. Abir Jana, Disha Bhattacharjee, Komal Kumari, Anup Dey, Bijoy Goswami and Subir Kumar Sarkar, "Designing Memristor Based Timing Circuits and Performance Comparison with CMOS Counterparts" In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) *Smart Trends in Computing and Communications: Proceedings of SmartCom 2020. Smart Innovation, Systems and Technologies*, vol 182. Springer, Singapore, 2020, pp.269-279., July, 2020
6. Anup Dey, Abir Jana, Komal Kumari, Bijoy Goswami, Poushali Nandi and Subir Kumar Sarkar, "Room Temperature Pt-Modified WO<sub>3</sub>/p-Si Film Gas Sensor for Detection of Methanol." In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) *Smart Trends in Computing and Communications: Proceedings of SmartCom 2020. Smart Innovation, Systems and Technologies*, vol 182. Springer, Singapore, 2020, pp.201-209, July, 2020.
7. Dipanjan Sen, Bijoy Goswami, Anup Dey and Subir Kumar Sarkar, "Performance Evaluation of Novel Channel Engineered Junctionless Double Gate MOSFET for Radiation Sensing and Low Power Circuit Application", Accepted for Book Titled "Electrical and Electronic Devices, Circuits and Materials: Design and Applications", CRC Press, Taylor and Francis, June, 2020

### F. Research Articles Published in Conference Proceedings during the year: (Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year)

#### Prof. Amit Konar

1. Pratyusha Rakshit, Archana Chowdhury, **Amit Konar**, Atulya K. Nagar, "Migration in Multi-Population Differential Evolution for Many Objective Optimization," *Proc. of IEEE. Flagship Conference Congress in Evolutionary Computation (CEC-2020), held at Glasgow during 19-24 July, 2020*, pp. 1-8, published on September, IEEE, ISBN no. 978-1-7281-6929-3, 2020.

## Annual Report 2020-2021

2. Pratyusha Rakshit, **Amit Konar**, Atulya K. Nagar, “Q-Learning Induced Artificial Bee Colony for Noisy Optimization,” Proc. of *IEEE. Flagship Conference Congress in Evolutionary Computation (CEC-2020)*, held at Glasgow during 19-24 July, 2020, pp. 1-8, published on September, IEEE, ISBN no. 978-1-7281-6929-3, 2020.
3. Amiyangshu De, Mousumi Laha, **Amit Konar**, Atulya K. Nagar, “Classification of Relative Object Size from Parietooccipital Hemodynamics Using Type-2 Fuzzy Sets,” Proc. of *IEEE. Flagship Conference on fuzzy system (FUZZ-IEEE-2020)*, held at Glasgow during 19-24 July, 2020, pp. 1-8, published on September, IEEE, ISBN no. 978-1-7281-6932-3, 2020.
4. Mousumi Laha, **Amit Konar**, Madhuparna Das, Chandrima Debnath, Nandita Sengupta, Atulya K. Nagar, “P200 and N400 Induced Aesthetic Quality Assessment of an Actor Using Type-2 Fuzzy Reasoning,” Proc. of *IEEE. Flagship Conference on fuzzy system (FUZZ-IEEE-2020)*, held at Glasgow during 19-24 July, 2020, pp. 1-8, published on September, IEEE, ISBN no. 978-1-7281-6932-3, 2020.
5. Dipayan Dewan, Lidia Ghosh, Biswadeep Chakraborty, Abir Chowdhury, **Amit Konar**, Atulya K. Nagar, “Cognitive Analysis of Mental States of People According to Ethical Decisions Using Deep Learning Approach,” Proc. of *IEEE. Flagship International Join Conference on Neural Network (IJCNN-IEEE-2020)*, held at Glasgow during 19-24 July, 2020, pp. 1-8, published on September, IEEE, ISBN no. 978-1-7281-6932-3, 2020.
6. Sayantani Ghosh, Mousumi Laha, **Amit Konar**, Pratyusha Rakshit, Atulya K. Nagar, “Vowel Sound Imagery Decoding by a Capsule Network for the Design of an Automatic Mind-Driven Type-Writer,” Proc. of *IEEE. Flagship International Join Conference on Neural Network (IJCNN-IEEE-2020)*, held at Glasgow during 19-24 July, 2020, pp. 1-8, published on September, IEEE, ISBN no. 978-1-7281-6932-3, 2020.
7. Sayantani Ghosh, Mousumi Laha, **Amit Konar**, Atulya K. Nagar, “Decoding of Subjective Pain-Sensitivity by Brain Signal Analysis Using a General Type-2 Fuzzy Classifier,” Proc. of *IEEE. Symposium Series on Computational Intelligence (SSCI) held at Canberra, Australia during December 1-4, 2020*, pp.3099-3106, published on January, IEEE, ISBN no. 978-1-7281-2547-3, 2021.
8. Sayantani Ghosh, Lidia Ghosh, **Amit Konar**, Atulya K. Nagar, “Assessment of Subjective Creativity Skill Using EEG Induced Capsule Network,” Proc. of *IEEE. Symposium Series on Computational Intelligence (SSCI)*, held at Canberra, Australia during December 1-4, 2020, pp. 3107-311, published on January, IEEE, ISBN no. 978-1-7281-2547-3, 2021.

### **Prof. Ananda Shankar Chowdhury**

9. Rukhmini Roy, Suparna Mazumder, **Ananda S. Chowdhury**: MDL-IWS: Multi-view Deep Learning with Iterative Watershed for Pulmonary Fissure Segmentation, *Proceedings of the Forty-second International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, pp. 1282 – 1285, July 2020.
10. Arindam Sikdar, Dibyadip Chatterjee, Arpan Bhowmik, **Ananda S. Chowdhury**: Open-Set Metric Learning for Person Re-Identification in the Wild, *Proceedings of the Twenty-Seventh IEEE International Conference on Image Processing (ICIP)*, UAE, pp. 2356 – 2360, October, 2020.
11. Arindam Sikdar, Abhimanyu Sahu, Debasish Sen, Rohit Mahajan, **Ananda S. Chowdhury**: Unconstrained Vision Guided UAV Based Safe Helicopter Landing, *Proceedings of the Twenty-Fifth IAPR International Conference on Pattern Recognition (ICPR)*, 8328 – 8335, January, 2021.
12. Jagannath Sethi, Jaydeb Bhaumik, **Ananda S. Chowdhury**: Chaos Based Uncompressed Frame Level Video Encryption, *Proceedings of the Seventh International Conference on Mathematics and Computing (ICMC)*, 2021 (to appear)

### **Prof. Bhaskar Gupta**

13. “**Design and Performance of a Slot Based Implantable Antenna in 2.45 GHz ISM Band**”, Soham Ghosh, ArdhenduKundu, Bhaskar Gupta, Indian Conference on Antennas and propagation, 17 October, 2021
14. Best Paper Award, international conference OPTRONIX 2020, 8-10th June 2020 ‘**Meta sensing Ovarian Cancer Cells at THz from C Band Radiation**’ to be published as Springer Book Chapter.



## Annual Report 2020-2021

15. Best Paper Award on 'A THz Metasurface Coated SoC for SPR Excited Carcinoma Sensing' at international IEEE conference ICE-3 2020 International Conference on Electrical and Electronics Engineering (ICE3-2020), MMMUT Gorakhpur (UP), India ICE3-2020, 14-15 February, 2020,

### **Prof. Mrinal Kanti Naskar**

16. A Das, C Majumder, D De, M K Naskar, "An Efficient Multiplier-less Hardware for Hidden Periodicity Detection Using Ramanujan Filter Bank", Applied Signal Processing Conference (ASPCON), pp. 56-60, IEEE, ISBN 978-1-7281-6882-1, 7-9 October, 2020.
17. A Das, C Majumder, D De, A Raha, M K Naskar, "HIPER: Low Power, High Performance and Area-Efficient Hardware Accelerators for Hidden Periodicity Detection using Ramanujan Filter Banks", 34th International Conference on VLSI Design (VLSID), pp. 111-116, IEEE, ISBN 978-0-7381-1270-1, ISSN 2380-6923, 20-24 February, 2021.
18. S Mitra, D Banerjee, M K Naskar, "A Low Latency Stochastic Square Root Circuit", 34th International Conference on VLSI Design (VLSID), pp. 7-12, IEEE, ISBN 978-0-7381-1270-1, ISSN 2380-6923, 20-24 February, 2021.

### **Prof. P. Venkateswaran**

19. T. Dutta, R. M. Aich, S. Dhabal and P. Venkateswaran, "Finite Impulse Response Filter Design using Grasshopper Optimization Algorithm and Implementation on FPGA", *2nd IEEE conference on Applied Signal Processing (ASPCON 2020), October 7 – 9, 2020, IEEE Signal Processing Society Kolkata Chapter, Jadavpur University, Kolkata*, pp. 313-317, 2020. **Electronic ISBN: 978-1-7281-6882-1 USB ISBN: 978-1-7281-6881-4 Print on Demand (PoD) ISBN: 978-1-7281-6883-8**
20. I. Ghazi, A. Das, R. M. Aich, S. Dhabal and P. Venkateswaran, "Improved Design of IIR filter using Salp Swarm Algorithm," *2020 IEEE 7th Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, pp. 1-5, Nov. 27-29, 2020. **Electronic ISBN: 978-1-6654-0373-3 Print on Demand (PoD) ISBN: 978-1-6654-4747-8 ISSN Information: Electronic ISSN: 2687-7767 Print on Demand (PoD) ISSN: 2687-7759**
21. A. Pramanik, P. Venkateswaran, et al., "An IOT based Building Occupancy Estimation using SIMCA and KNN as Classification models, 6th International Conference on Emerging Applications of Information Technology (EAIT 2020), Feb. 25-27, 2021, Jointly organized by Computer Society of India (CSI) Kolkata Chapter and University of Kalyani

### **Prof. Sheli Sinha Chaudhuri**

22. Gourab Adhikari, Sourav Halder, Sriparna Banerjee and **Sheli Sinha Chaudhuri**, "An Effective Use of Synthetic Aperture Radar Imaging Technique Over Optical Remote Sensing and Real Aperture Radar for Mapping of Earth Surface Features", International Conference on Innovations in Energy Management and Renewable Resources (IEMRE 2021), International Conference on Innovations in Energy Management and Renewable Resources (IEMRE 2021), IEEE, ISBN: 978-1-6654-2939-9, 2021.
23. Sriparna Banerjee, Pritam Kumar Ghosh, Pranay Kumar Singha, Swati Chowdhuri and **Sheli Sinha Chaudhuri**, "Relevance of Color spaces and Color channels in performing Image dehazing", International Conference on Innovations in Energy Management and Renewable Resources (IEMRE 2021), IEEE, ISBN: 978-1-6654-2939-9, 2021.
24. Gourab Adhikari, Sourav Halder, Sriparna Banerjee and **Sheli Sinha Chaudhuri**, "An Edge Aware Polarimetric Co-Variance Feature Matrix Generation of Geo-Coded and Quad-Polarized Single Look Complex Synthetic Aperture Radar Data", International Conference on Innovations in Energy Management and Renewable Resources (IEMRE 2021), IEEE, ISBN: 978-1-6654-2939-9, 2021.
25. Avra Ghosh, Sangita Roy and **Sheli Sinha Chaudhuri**, "Hardware Implementation of Image Dehazing Mechanism using Verilog HDL and Parallel DCP", Applied Signal Processing Conference (ASPCON), pp. 283-287, IEEE, ISBN: 978-1-7281-6882-1, 2020.

## Annual Report 2020-2021

26. Shibarjun Mondal and **Sheli Sinha Chaudhuri**, "Polyps Segmentation using Fuzzy Thresholding in HSV Color Space" IEEE HYDCON 2020, IEEE, ISBN: 9781728149950, 2020.
27. Sriparna Banerjee, **Sheli Sinha Chaudhuri**, Raghav Mehra and Arundhati Misra, "A Comprehensive Survey on Frost Filter and its Proposed Variants", International Conference on Communication and Electronics Systems (ICCES 2020), IEEE, 2020.
28. Kyamelia Roy, Probhakar Roy, **Sheli Sinha Chaudhuri**, "Capsule Neural Network Architecture Based Multi-class Fruit Image Classification" 6<sup>th</sup> International conference on Opto-Electronic and Applied Optics (OPTRONIX 2020), Advances in Smart Communication Technology and Information Processing, pp. 171-180, Springer, ISBN:978-981-15-9432-8(Print ISBN),2020.
29. Sriparna Banerjee, **Sheli Sinha Chaudhuri**, Raghav Mehra and Arundhati Misra, "A Survey on Lee filter and its improved variants", 6<sup>th</sup> International conference on Opto-Electronic and Applied Optics (OPTRONIX 2020), Advances in Smart Communication Technology and Information Processing, pp. 371-383, Springer, ISBN:978-981-15-9432-8 (Print ISBN),2020.
30. Sriparna Banerjee, **Sheli Sinha Chaudhuri**, Raghav Mehra and Arundhati Misra, "A comprehensive review of Median Filter, Hybrid Median Filter and their proposed variants", 6<sup>th</sup> International conference on Opto-Electronic and Applied Optics (OPTRONIX 2020), Advances in Smart Communication Technology and Information Processing, pp. 393-406, Springer, ISBN:978-981-15-9432-8 (Print ISBN),2020.
31. Sriparna Banerjee, Shambhab Chaki, Soham Jana and **Sheli Sinha Chaudhuri**, "Fuzzy Logic-Refined Color Channel Transfer Synergism based Image Dehazing" IEEE Tensymp, pp.654-657, IEEE, ISBN:978-1-7281-7366-5, 2020.

### **Prof. Subir Kumar Sarkar**

32. Pramit Brata Chanda, **Subir Kumar Sarkar**, "Medical Image Based Approach For Classification Of Several Stages For Retinopathy Disease Using Machine Learning Methodology", October 2020, IET, 978-1-83953-272-6, MFIS 2020
33. P. B. Chanda and **Subir Kumar Sarkar**, "Cardiac MR Images Segmentation For Identification Of Cardiac Diseases Using Fuzzy Based Approach," 2020 Third International Conference on Smart Systems and Inventive Technology (ICSSIT), Tirunelveli, India, 2020, pp. 1238-1246, doi: 10.1109/ICSSIT48917.2020.9214080.
34. Pramit Brata Chanda and Aniruddha Paul, Aritra Paul and **Subir Kumar Sarkar**, "Spondylosis Detection And Classification Of Cervical Images Using ATMFCMC Based Medical Image Segmentation Methods", (April, 2020). Proceedings of the International Conference on Advances in Electronics, Electrical & Computational Intelligence (ICAEEC) 2019, Available at SSRN: <https://ssrn.com/abstract=3575474> or <http://dx.doi.org/10.2139/ssrn.3575474>
35. S Nath, R Bandyopadhyay, S Biswas, J K Sing and **Subir Kumar Sarkar**, "A New Global Routing Optimization Algorithm based on Pigeon Inspired Optimization," 2020 IEEE Calcutta Conference (CALCON), Kolkata, India, 2020, pp. 184-188
36. Subhrapratim Nath, Sagnik Gupta, Saptarshi Biswas, Rupam Banerjee, Jamuna Kanta Sing and **Subir Kumar Sarkar**, "GPSO Hybrid Algorithm for Rectilinear Steiner Tree Optimization", in IEEE VLSI Device Circuit And System (VLSI DCS), 18-19 July, 2020, Kolkata, India, DOI:10.1109/VLSIDCS47293.2020.9179861
37. Subhrapratim Nath, Abhijit Paul, Rupam Banerjee, Swarnabja Bhaumik, Jamuna Kanta Sing and **Subir Kumar Sarkar**, "Optimizing FANET Routing Using a Hybrid Approach of Firefly Algorithm and ACO-Lévy Flight", in IEEE VLSI Device Circuit And System (VLSI DCS), 18-19 July 2020, Kolkata, India, DOI: 10.1109/VLSIDCS47293.2020.9179956
38. S.Ghosh, S. Kundu, S. Guha, J. Ghosh, P. Pachal and **Subir Kumar Sarkar**, "Effect of Body Thickness on Device Performance of Graded Channel Tri-Metal Double Gate Stack Gate TFET," 2020 IEEE VLSI Device Circuit And System (VLSI DCS), Kolkata, India, 18-19 July, 2020, pp. 427-431, doi: 10.1109/VLSIDCS47293.2020.9179899.
39. S. Ghosh, P. Pachal, R. Kumar, S. Kundu, J. Ghosh and **Subir Kumar Sarkar**, "Double Gate p-n-p-n TFET with Hetero Oxide Dielectric and High-K Spacer Engineering," 2020 IEEE VLSI Device

## Annual Report 2020-2021

- Circuit And System (VLSI DCS), Kolkata, India, 18-19 July, 2020, pp. 1-5, doi: 10.1109/VLSIDCS47293.2020.9179943.
40. Priyanka Saha and **Subir Kumar Sarkar**, "Work function engineering based Broken Gate TFET: modeling and simulation based theoretical analysis", IEEE Region 10 Symposium (TENSYP), 5-7, June 2020, Dhaka, Bangladesh
41. Dipanjan Sen, Bijoy Goswami, Anup Dey, Priyanka Saha and **Subir Kumar Sarkar**, "Impact of Self-Heating and Nano-Gap Filling Factor on AlGaAs/GaAs Junction-Less DG-MOSFET Based Biosensor for Early Stage Diagnostics", IEEE Region 10 Symposium (TENSYP), 5-7 June ,2020, Dhaka, Bangladesh.

### **Prof. Sudipta Chattopadhyay**

42. S. Majumdar, **S. Chattopadhyay**, S. R. Ghatak and V. Biswas, "Throughput and Error Function Joint optimization for CSS Based Field Area Network under Various Fading Environments," *2020 IEEE Applied Signal Processing Conference (ASPCON)*, 2020, pp. 330-334, doi: 10.1109/ASPCON49795.2020.9276663.
43. S. Majumdar, **S. Chattopadhyay**, V. Biswas and S. R. Ghatak, "Optimizing Capacity-Throughput Tradeoff for Enhanced Spectrum Sensing in CSS Based Cognitive Home Area Network," *2020 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET)*, 2020, pp. 159-163, doi: 10.1109/WiSPNET48689.2020.9198391.
44. M. Adhikari, P. K. Panda, **S. Chattopadhyay** and S. Majumdar, "A Novel Group-Based Authentication and Key Agreement Protocol for IoT Enabled LTE/LTE-A Network," *2020 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET)*, 2020, pp. 168-172, doi: 10.1109/WiSPNET48689.2020.9198342.
45. N. Das, S. Debnath, C. Thakur and **S. Chattopadhyay**, "Adaptive RF Energy Harvesting Relaying Protocol for Bidirectional Multi-Relay Multi-antenna Cooperative Network over Nakagami Fading," *2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT)*, 2021, pp. 1-6, doi: 10.1109/ICAECT49130.2021.9392510.
46. S. Roy, P. Kabiraj, S. Dey, C. Thakur and **S. Chattopadhyay**, "Throughput Analysis of Multi-Source Multi-Antenna Cooperative Relay Network with RF Energy Harvesting using Improved Relay Selection schemes," *2020 4th International Conference on Electronics, Materials Engineering & Nano-Technology (IEMENTech)*, 2020, pp. 1-6, doi: 10.1109/IEMENTech51367.2020.9270109.
47. C. Thakur and **S. Chattopadhyay**, "Secrecy Performance of an improved Interference-aided RF Energy Harvesting scheme in Two-Way Multi-Antenna Relay Network," *2020 IEEE Applied Signal Processing Conference (ASPCON)*, 2020, pp. 123-127, doi: 10.1109/ASPCON49795.2020.9276720.
48. P. Biswas, C. Thakur, A. Haldar, and **S. Chattopadhyay**, "Secrecy Performance of Novel Destination Assisted Jamming in Wireless Cooperative Networks under the Influence of Trusted and Untrusted Relays," *A Collection of Contemporary Research Articles in Electronics, Communication and Computation*, p. 13, 2021.
49. D. K. Lal, C. Thakur, **S. Chattopadhyay**, and S. Nag, "Throughput Analysis Using Three-Step Two-Way Decode And Forward Multi Relay Network For Wireless Energy Harvesting," *A Collection of Contemporary Research Articles in Electronics, Communication and Computation*, p. 62, 2021.

### **Dr. Jaydeb Bhaumik**

50. J. Sethi, **J. Bhaumik**, and A. S. Chowdhury, "Chaos based uncompressed frame level video encryption," *Proc. of 7th International Conference on Mathematics and Computing (ICMC 2021)*, IEST, Shibpur, India, AISC, Springer, ISBN:978-981-16-6890-6, March 2021 (in press)
51. S. Tripathi, J. Jana and **J. Bhaumik**, "Design of Power Efficient SEC Orthogonal Latin Square (OLS) Codes," *Proc. of 3rd Int. Conf. on Computing and Communication Systems (I3CS2020)*, NEHU, India, LNNS, vol. 170, Springer, ISBN:978-981-33-4084-8 pp. 593-600, Aug. 2020.

### **Dr. Sayan Chatterjee**

52. Swarup Dandapat, Shrabanti Das, Moumita Das, Sayan Chatterjee, "**High Speed Low Power CML Technique Based Frequency Divider in 180nm Technology**", *Proceedings of International*

## Annual Report 2020-2021

- Conference on Frontiers in Computing and Systems, pp. 915-922, Springer, Print 978-981-15-7833-5 West Bengal India, 2020.
53. Shrabanti Das, Swarup Dandapat, Sayan Chatterjee, “**Design of Low Phase-Noise LC-VCO at 2.5 GHz by Body-Bias Technique Using CMOS 180 nm Technology,**” 2020 IEEE VLSI Device Circuit And System (VLSI DCS) pp 1-4, 18-19 July, 2020 IEEE, ISBN978-1-7281-1934-2.
  54. Swarup Dandapat, Sabarno Chowdhury, Shrabanti Das, Sayan Chatterjee, “**A Wide Tuning Range LC VCO through Switched Capacitor Bank using TSMC 180nm Technology,**” Proceedings of 2020 IEEE Region 10 Symposium (TENSYP), pp 1058-1061, Dhaka, Bangladesh, 2020, IEEE E-ISSN 2642-6102
  55. Arka Bhattacharyya, Amartya Banerjee, Sayan Chatterjee, Bhaskar Gupta “**Dual-Band Minkowski Fractal Patch Antenna with Polarization Diversity,**” Proceedings of IEEE International Conference (CALCON 2020) pp. 89-92, 2020, IEEE ISBN 978-1-7281-5362-9.
  56. S. G. Mallick, B. Biswas, S. Chatterjee, G. A. Kumar and D. R. Poddar, “**A Multilayered Transition between SIW and ESIW,**” Proceedings of IEEE International Conference (CALCON 2020) pp. 181-183, 2020 IEEE ISBN 978-1-7281-5362-9.
  57. T. K. Das, and S. Chatterjee, “**Improved Stopband Rejection in Compact Microstrip Filters by Transmission Zero Reallocation,**” Proceedings of IEEE International Conference (CALCON 2020) pp. 10-14, 2020, IEEE ISBN 978-1-7281-5362-9

### Dr. Divya Somvanshi

58. S. Chowdhury, P Venkateswaran, **D. Somvanshi**, Optical and Electrical Characterization of n-MoS<sub>2</sub>/p-Si Heterojunction Diode, IEEE International IOT, Electronics and Mechatronics Conference (IEMTRONICS), **Electronic ISBN: 978-1-7281-9615-2**, 9-12 Sept 2020.

### Dr. Pratyusha Rakshit

59. **Pratyusha Rakshit**, Amit Konar and Atulya K. Nagar, “Migration in Multi-Population Differential Evolution for Many Objective Optimization,” in *IEEE Congress on Evolutionary Computation*, July, 2020, DOI: 10.1109/CEC48606.2020.9185596.
60. **Pratyusha Rakshit**, Archana Chowdhury, Amit Konar and Atulya K. Nagar, “Q-Learning Induced Artificial Bee Colony for Noisy Optimization,” in *IEEE Congress on Evolutionary Computation*, July, 2020, DOI: 10.1109/CEC48606.2020.9185844.
61. Sayantani Ghosh, Mousumi Laha, Amit Konar, Pratyusha Rakshit, and Atulya K. Nagar, “Vowel Sound Imagery Decoding by a Capsule Network for the Design of an Automatic Mind-Driven Type-Writer,” in *IEEE Joint Conference on Neural Network*, July, 2020, DOI: 10.1109/IJCNN48605.2020.9206754.

### G. Patents Granted/ Published/ Filed during the year:

Name of the Inventors	Title of the Patent	National/ International	Status Granted/ Published/ Filed	Patent Number	Date of Publication
Amrita Chakraborty, Bhaskar Gupta and Binay Kumar Sarkar	“A Radio Frequency MEMS Unit Cell Miniature-size Switched Capacitor Based Phase Shifter Device”,	Indian Patent	Granted	378053	28 January. 2013, accepted in February 2016, Patent granted on 28 September, 2021

**Annual Report 2020-2021**

Iti Saha Misra and Tanumay Manna		National	First response report submitted	patent application no.201731019587	February, 2021
---	--	----------	---------------------------------------	---------------------------------------	-------------------

**H. Research Collaboration with other Departments/Institutes/Industries:**

<b>Name of the Teacher(s)</b>	<b>Name of the Collaborator(s)</b>	<b>Collaborating Dept./Inst./Indus.</b>	<b>Nature of Collaboration</b>	<b>Duration</b>
<b>Prof. Amit Konar</b>	Prof. Atulya K. Nagar	Liverpool Hope University, UK	Experimental support received	1 year, 1 April, 2020 to 31 March, 2021
<b>Prof. Amit Konar</b>	Dr. Nandita Sengupta	Bahrain Institute of Technology, Bahrain	Experimental support received	1 year, 1 April, 2020 to 31 March, 2021
<b>Ananda S. Chowdhury</b>	Debasish Sen, Rohit Mahajan	Elmax Systems and Solutions	Research	1 year
<b>Ananda S. Chowdhury</b>	Natascia Tiso  Enrico Grisan	Department of Biology, University of Padova, Italy  Department of Information E, University of Padova, Italy and  London South Bank University, UK	Research	3 years
<b>Ananda S. Chowdhury</b>	Thierry Bouwmans	University of La Rochelle, France	Research	1 year
<b>Prof Bhaskar Gupta(PI)</b>  <b>Dr. Sayan Chatterjee (Co-PI)</b>	Prof. Miloslav Capek (PI)	DST India-Czech Joint Research Projects 2019, Collaborative research project between ETCE Dept., JU and Czech Technical University, Prague.	Principal Investigator	3 years
<b>Prof. Chayanika Bose</b>	Prof. Kalyan Kumar Chattopadhyay	Department of Physics, JU	Ph.D. Guidance	03 years
<b>Prof. Chayanika Bose</b>	Dr. Anirudhha Chandra	Dept. of ECE, NIT, Durgapur	Ph.D. Guidance	05 years

**Annual Report 2020-2021**

<b>Prof. Subir Kumar Sarkar</b>	Prof. Supriyo Bandyopadhyay	Virginia Commonwealth University, USA.	research activities in the field of Spintronics	1999 to till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Partha Bhattacharya	Indian Institute of Engineering Science and Technology, Shibpur (former BESU).	research activities in the field of nanodevices	2008 till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Pranab Kishore Dutta and Mr. Swanirbhar Majumder	North Eastern Regional Institute of Science and Technology (NERIST).	research activities in the field of nanodevices	2017 till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Ashish Kumar De and Prof. B. Maji	National Institute of Technology, Durgapur.	research activities in the field of nanodevices	2008 till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. N. B. Singh	Manipur Institute of Technology.	research activities in the field of nanodevices	2002 till date
<b>Prof. Subir Kumar Sarkar</b>	Mr. Sudipta Ghosh and Mr. Subhrapatim Nath	Meghnad Saha Institute of Technology, Kolkata	research activities in the field of nanodevices	2017 till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Bijoy Kantha and Dr. Saheli Sarkhel	Netaji Subhash Engineering College, Garia, Kolkata	research activities in the field of nanodevices	2016 till date
<b>Prof. Subir Kumar Sarkar</b>	Mr. Dinesh Kumar Dash	Parala Maharaja Engineering College, Berhampur, Odisha	research activities in the field of nanodevices	2020 till date
<b>Prof. Subir Kumar Sarkar</b>	Mr. Bijoy Goswami	Assam engineering College, Guwahati, Assam.	Research activities in the field of nanodevices	2020 till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Manas Ranjan Nayak	KIT, Bhubaneswar Odisha.	Research activities in the field of nanodevices	2019 till date
<b>Pratyusha Rakshit</b>	Prof. Jose Antonio Lozano	Basque Center for Applied Mathematics, Bilbao, Spain	Postdoctoral research	September, 2019- December, 2020

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**Annual Report 2020-2021**

**A. Books/Monographs Published :**

<b>Name of the Author(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
Arup Kumar Sadhu and <b>Amit Konar</b>	Multi-Agent Coordination: A Reinforcement Learning Approach	Wiley-IEEE Press	ISBN: 978-1-119-69903-3	December, 2020.
Lidia Ghosh, <b>Amit Konar</b> and <b>Pratyusha Rakshit</b>	Cognitive Modeling of Human Memory and Learning: A Non-invasive Brain-Computer Interfacing Approach	Wiley-IEEE Press	ISBN: 978-1-119-70586-4	October-2020
Abhirupa Saha, Sanjib Sil, Srikanta Pal, Bhaskar Gupta, Piyali Basak	Chapter Title: THz Meta-Atoms Versus Lattice to Non-Invasively Sense MDAMB 231 Cells in Near Field Title of the Book: Advances in Terahertz Technology and Its Applications	Publisher: Springer, Singapore	978-981-16-5731-3	2021
Abir Jana, Disha Bhattacharjee, Komal Kumari, Anup Dey, Bijoy Goswami and Subir Kumar Sarkar	“Designing Memristor Based Timing Circuits and Performance Comparison with CMOS Counterparts”	In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) Smart Trends in Computing and Communications: Proceedings of Smart Com 2020.	Online ISBN 978-981-15-5224-3	2020
Anup Dey, Abir Jana, Komal Kumari, Bijoy Goswami, Poushali Nandi and Subir Kumar Sarkar	“Room Temperature Pt-Modified WO <sub>3</sub> /p-Si Film Gas Sensor for Detection of Methanol.”	In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) Smart Trends in Computing and Communications: Proceedings of Smart Com 2020.	Online ISBN 978-981-15-5224-3	2020
Dipanjan Sen, Bijoy Goswami, Anup Dey and Subir Kumar Sarkar	“Performance Evaluation of Novel Channel Engineered Junctionless Double Gate MOSFET for Radiation Sensing and Low Power Circuit Application” Accepted for Book	CRC Press, Taylor and Francis,	e-Book ISBN 9781003097723	2020

**Annual Report 2020-2021**

	Titled “Electrical and Electronic Devices, Circuits and Materials: Design and Applications”			
--	---	--	--	--

**B. Books/Monographs Edited:**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Amit Konar and Witold Pedrycz (Series Editor, Cognitive Intelligence and Robotics Series, Springer)	Cognitively Inspired Video Text Processing	Springer	978-981-16-7069-5	2021
	Autonomous Underwater Vehicles	Springer	978-981-16-6096-2	2021
	Deep Learning and Practice with MindSpore	Springer	978-981-16-2233-5	2021
	Human Emotion Recognition from Face Images	Springer	978-981-15-3883-4	2020
	Multi-body Dynamic Modeling of Multi-legged Robots	Springer	978-981-15-2953-5	2020
	Intrusion Detection	Springer	978-981-15-2716-6	2020
Prof. Subir Kumar Sarkar	Journal: Current Electronics and Telecommunications	Pisco Med Publishing	ISSN(Online):2661-4022(O)	2020

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
CVPR Workshop on Neural Architecture Search and Beyond for Representation Learning  (CVPR-NAS)  -- PC Member: <b>Ananda S. Chowdhury</b>	Rameshwar Panda (IBM Research, USA) and Tianfu Wu (NC State University, USA)	---	Online	19 June, 2020
ECCV Workshop on Multi-Modal Video Analysis  (ECCV-MVA)	Rameshwar Panda (IBM Research, USA) and Dhiraj Joshi (IBM Research, USA)	---	Online	23 August, 2020



**Annual Report 2020-2021**

<p>-- PC Member: <b>Ananda S. Chowdhury</b></p>				
<p>IAPR International Conference on Computer Vision and Image Processing (CVIP) 2020  -- PC Member: <b>Ananda S. Chowdhury</b></p>	<p>General Chair: Prof. P. Nagabhushan</p>	<p>Proceedings of the 5<sup>th</sup> International Conference on CVIP, Springer CCIS, Vol. 1376</p>	<p>IIIT Allahabad</p>	<p>4-6 December, 2020</p>
<p>Innovative Technology &amp; Management Dedicated to Sustainable Humanistic Face  Prof. Bhaskar Gupta</p>	<p>Organizing Secretary of National Symposium</p>	<p>Nil</p>	<p>Faculty of Engineering &amp; Technology, Jadavpur University, Kolkata 700 032 and Vivekananda Institute of Environment &amp; Management, Kolkata 700 091 and was held in Hybrid Mode</p>	<p>20-22 November, 2020.</p>
<p>Occupational Health &amp; Environment Management towards Sustainable Growth  Prof. Bhaskar Gupta</p>	<p>Organizing Secretary of 40 Hours Online Internship on Safety</p>	<p>Nil</p>	<p>Faculty of Engineering &amp; Technology, Jadavpur University, Kolkata 700 032 and Vivekananda Institute of Environment &amp; Management, Kolkata 700 091</p>	<p>7- 30 December, 2020</p>
<p>ComSoc Virtual Distinguished Lecture</p>	<p>Iti Saha Misra and Susmita Das (NIT Rourkela)</p>	<p>Nil</p>	<p>NIT Rourkela</p>	<p>07 November, 2020</p>

### Annual Report 2020-2021

Hult Prize Impact Summit Kolkata 2021	Campus Coordinator : Sayan Chatterjee	Nil	Kolkata	5-6 March, 2021
E-weekend	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	26-28 February, 2021
Call for Idea contest : Covid 19	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	14 April to 26 July, 2020
Call for Idea contest for National Innovation contest 2020 : Theme Toy industry	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	01 June to 01 July, 2020
Webinar on Developmental Finance and Macro Shocks - A Few Perspectives	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	28 November, 2020
Webinar on Placements - Graduating into a New Normal Job market	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	7 November, 2020
TEQIP-III sponsored Workshop- Entrepreneur, Innovation and Capital Venture	Chandrima Mondal Sheli Sinha Chaudhuri Jaydeb Bhaumik	NA	ETCE Department, Jadavpur University,	18-25 February, 2021

#### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
<b>Prof. P. Venkateswaran</b>	One Semester FDP by SWAYAM / NPTEL on Accreditation of Undergraduate Engineering Programme	Online	25 March 2021 (Date of Exam)
<b>Prof. Subir Kumar Sarkar acted as resource Person (Invited speaker)</b>	“FDP on Entrepreneurship, Innovation and Capital Venture”	Jadavpur University, Kolkata	24 February, 2021

### Annual Report 2020-2021

<b>Prof. Subir Kumar Sarkar acted as resource Person(Invited speaker)</b>	“IoT & Cyber Security” at AICTE sponsored ATAL FDP	Institute of Engineering & Management	21-25 June, 2021.
<b>Prof. Subir Kumar Sarkar acted as resource Person(Invited speaker)</b>	“Security in Wireless Sensor Networks”, in One Week Faculty Development Programme on Image Authentication, WSN & IoT	Department of CSE, JIS College of Engineering, West Bengal, India.	22-26 June, 2020
<b>Pratyusha Rakshit</b>	3rd Faculty Induction Programme organized by UGC- Human Resource Development Centre, Jadavpur University	Jadavpur University, Kolkata	22 February, - 27 March, 2021

#### F. Invited Lectures Delivered/Sessions Chaired:

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Amit Konar</b>	Keynote Speaker	IEEE Flagship Conference: World Congress in Computational Intelligence-2020 (WCCI- 2020), 19-24 July, 2020. Presented on 20 July, 2020.	Glasgow, UK	One hour
<b>Ananda S. Chowdhury</b>	Invited Talk	UGC Sponsored Refresher Course	Mizoram University	14 days
<b>Prof. Bhaskar Gupta</b> “Information and Communication Technologies for Smart City Applications”,	Delivered expert talk	One-Week ATAL Faculty Development Program (FDP) (ICT4Smart-2021)	Department of ECE, NIT Silchar, Assam, India	11-15 January, 2021
<b>Prof. Bhaskar Gupta</b> “Dielectric Resonator and Its Applications”, DRA 2020	Delivered expert talk	One-Week Indo-Canada SPARC-Course	Department of ECE, NIT Silchar, Assam, India	20-24 November, 2020
<b>Prof. Bhaskar Gupta</b> "Technologies for high frequency communication”	Delivered lecture	TEQIP III sponsored international lecture series	Organized by Department of ECE, Visvesvaraya National	8 March, 2021.

**Annual Report 2020-2021**

			Institute of Technology,	
<b>Prof. Bhaskar Gupta</b> National Youth Day Celebration 2021 organized	Delivered Keynote Address	Vivekananda Institute of Environment & Management, Kolkata 700091 and Eastern Zonal Cultural Centre, Ministry of Culture, Govt. of India.	Sabhaghar, Bhartiyam Cultural Complex at 11 am	12 January, 2021
<b>Prof. Bhaskar Gupta</b> Recent Advances in “Electronic Devices for Real Life Application”	Delivered Expert talk in STC,  Chief Guest, Inaugural Program	REDA-2020	Department of Electronics & Communication Engineering, NIT Jamshedpur,	24 November, 2020 and Expert talk on same day.
<b>Prof. Bhaskar Gupta</b> “Electromagnetic Radiation Absorption in Indian Flora and Related Consequences: A Critical Issue for Sustainable Growth”	Delivered lecture.	-----	IEEE AP-S Tunisia Chapter in Microwave Electronics Research Laboratory (MERLab) of the Faculty of Sciences de Tunis, University of Tunis El Manar,	21 December, 2020.
<b>Prof. Bhaskar Gupta</b> “An Introduction to RF MEMS Technology”	Delivered lecture inIEEE One-day online Talk	-----	The IEEE EDS Kalyani Govt. Engg. College SB Chapter in association with Dept. of ECE, Kalyani Government Engineering College,	30 June,2020.
<b>Prof. Bhaskar Gupta</b> "Virtual EMC Design of E-Mobility Components" Speaker: Dr. Jan	Chaired the webinar	-----	IEEE MTT-S SBC Jadavpur University	

**Annual Report 2020-2021**

Hansen, Automotive EMC, Stuttgart, Germany held on 13th March 2021.				
<b>Prof. Bhaskar Gupta</b>  “Modeling, characterization, and effective description of heterogeneous and composite electromagnetic materials”, Speaker: Prof. Ari Sihvola, Department of Electronics and Nanoengineering, Aalto University, Finland, held on	Chaired the webinar	-----	IEEE MTT-S SBC Jadavpur University	17 April, 2021.
<b>Prof. Bhaskar Gupta</b>  'Microwave Filter: Gateway of modern communication system' Speaker: Dr. Sayan Chatterjee, Associate Professor, Dept. of Electronics and Telecommunication Engineering, Jadavpur University, Kolkata, India	Chaired the webinar	-----	IEEE MTT-S SBC Jadavpur University	1 November, 2020.
<b>Iti Saha Misra</b>	Invited Lecture: <b>Cognitive Radio and 5G Communication</b> as Speaker, 10 Nov 2020	Short term course on Futuristic Wireless Communication & IoT-5G & Beyond	NIT Rourkela, EE Dept.	One hour
<b>Iti Saha Misra</b>	Speaker	Women in SIGHT Summit (WISE) on 6th December 2020	Dhaka, Bangladesh	20 mins.

### Annual Report 2020-2021

<b>Iti Saha Misra</b>	Session Chair	3rd ICEPE 2020 conference	Department of Electrical Engineering, NIT Meghalaya, Shilong,	07 March 2021, 2 hours
<b>Iti Saha Misra</b>	Delivered Inaugural Address	IEEE ACTS -2020	NIT Silchar, 4/12/2020	10 mins.
<b>Prof. P. Venkateswaran</b>	Session Chair for the Technical Session on Emerging Technology, April 11, 2021, 2.30PM – 4PM	2 <sup>nd</sup> International Conference on Data Science & Applications (ICDSA 2021), Jadavpur University, Kolkata, April 10 & 11, 2021	JU (Online mode)	10 -11 April, 2021
<b>Sheli Sinha Chaudhuri</b>	Delivered Online Lecture	Conference-Optronix 2020	UEM Kolkata	8-10 June, 2020
<b>Sheli Sinha Chaudhuri</b>	Delivered Online Lecture	FDP- Signal, Image and Video Processing	ECE Department NIT, Agartala	23 June, 2020
<b>Sheli Sinha Chaudhuri</b>	Session chaired	Conference-IEMENTech 2020	IEM, Kolkata	2-3 October, 2020
<b>Sheli Sinha Chaudhuri</b>	Delivered Online Lecture	IETE Student Forum and IEEE CAS Student Chapter organized Webinar	ECE Department NIT, Agartala	16 December, 2020
<b>Sheli Sinha Chaudhuri</b>	Delivered Online Lecture	TEQIP-III sponsored webinar series organized by IIC, JU in association with e-cell	JU	22-24 December, 2020
<b>Sheli Sinha Chaudhuri</b>	Delivered Online Lecture	FDP- New Trends in Machine Learning	ECE Department, NIT, Agartala	22-26 March, 2021
<b>Prof. Subir Kumar Sarkar</b>	invited talk	“FDP on Entrepreneurship, Innovation and Capital Venture”	Jadavpur University, Kolkata	24 February, 2021
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Plenary talk	Renovation and Innovation in nano device structures for performance improvement” at International Conference on	Department of Electronics & Communication Engineering, SRM Institute of Science and	16 November, 2020

**Annual Report 2020-2021**

		Electronics, Photonic, and Smart Technologies (IC-ePhaST '20)	Technology, Kattankulathur	
<b>Prof. Subir Kumar Sarkar</b>	Guest lecture	"Computation without power dissipation: Low power VLSI a Prospective solution" in International Conference on Electronics, Photonics and Smart Technologies (ICePhaST'20)	Department of Electronics & Communication Engineering, SRM Institute of Science and Technology, Kattankulathur	16 November, 2020
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Keynote speech	"Security and Trust Management in Wireless selforganizing Networks: A Strategic Challenge", in three days' seminar on 2 <sup>nd</sup> International Conference on Ubiquitous and Emerging Concepts on Sensors & Transducers (UEM COS 2020)	Dept. of ECE, University of Engineering and Management (UEM), Kolkata, India.	16-18 October, 2020,
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Plenary talk	"Trust Management in Wireless self organizing Networks: A Strategic Challenge", in three days' seminar on IEEE International Conference for Convergence in Engineering (ICCE 2020)	Dept. of ECE, Netaji Subhash Engineering College, Kolkata, India.	4-6 September, 2020
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Keynote speech	"Transient and biodegradable electronic: EWaste Management" at webinar on, in IEEE VLSI DCS-2020	MSIT, Kolkata, West Bengal, India	18 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Keynote speech	"Security in Wireless Sensor Networks", in One Week Faculty Development Programme on Image	Department of CSE, JIS College of Engineering,	22-26 June, 2020

### Annual Report 2020-2021

		Authentication, WSN & IoT	West Bengal, India.	
<b>Prof. Subir Kumar Sarkar</b>	Invited talk	“Non-conventional solar cells developing cost effective sustainable Green Energy” at Webinar Series on "Sustainable Energy	Department of Electronics & Communication Engineering, BPPIMT, Kolkata	19 June, 2021
<b>Teacher: Prof. Sudipta Chattopadhyay</b>	Delivered lecture as Women in Engineering (WIE) leader	International Women's Day Virtual Netorking Tour ith Visionary Women in Engineering (WIE) Leaders organized by IEEE region 10	Virtual mode	08 March, 2021
<b>Teacher: Prof. Sudipta Chattopadhyay</b>	Chaied a networking session where engineers, working professionals, academicians, research scholars and students from Asia pacific region participated	International Women's Day Virtual Netorking Tour ith Visionary Women in Engineering (WIE) Leaders organized by IEEE region 10	Virtual mode	08 March, 2021
<b>Sayan Chatterjee</b>	Invited lecture	FDP on Recent Innovations And Trends in Antenna Design	Dept. of ECE, Silicon Institute Of Technology, Sambalpur, Odisha	23-27 June, 2020
<b>Sayan Chatterjee</b>	Session chair	Faculty Development Program on Entrepreneurship Innovation and Capital Venture	Dept. of ETCE, Jadavpur University	25 February, 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>



### Annual Report 2020-2021

<b>Sayantani Ghosh under the guidance of Prof. Amit Konar</b>	Vowel Sound Imagery Decoding by a Capsule Network for the Design of an Automatic Mind-Driven Type-Writer	IEEE World Congress on Computational Intelligence (WCCI), International Joint Conference on Neural Networks (IJCNN), 2020	Glasgow, UK	19-24 July, 2020
<b>Sayantani Ghosh, under the guidance of Prof. Amit Konar</b>	Decoding of Subjective Pain-Sensitivity by Brain Signal Analysis Using a General Type-2 Fuzzy Classifier	Symposium Series on Computational Intelligence (SSCI)	Canberra, Australia	1-4 December, 2020
<b>Sayantani Ghosh, under the guidance of Prof. Amit Konar</b>	Assessment of Subjective Creativity Skill Using EEG Induced Capsule Network	Symposium Series on Computational Intelligence (SSCI)	Canberra, Australia	1-4 December, 2020
<b>Lidia Ghosh under the guidance of Prof. Amit Konar</b>	Cognitive Analysis of Mental States of People According to Ethical Decisions Using Deep Learning Approach	IEEE World Congress on Computational Intelligence (WCCI), International Joint Conference on Neural Networks (IJCNN), 2020	Glasgow, UK	19-24 July, 2020
<b>Mousumi Laha under the guidance of Prof. Amit Konar</b>	Classification of Relative Object Size from Parietooccipital Hemodynamics Using Type-2 Fuzzy Sets	IEEE World Congress on Computational Intelligence (WCCI), FUZZ-IEEE, 2020	Glasgow, UK	19-24 July, 2020
<b>Ananda S. Chowdhury</b>  <b>Presented by Rukhmini Roy (RS)</b>	MDL-IWS: Multi-view Deep Learning with Iterative Watershed for Pulmonary Fissure Segmentation	Forty-second International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)	Montreal, Canada	20-24 July, 2020

**Annual Report 2020-2021**

<b>Ananda S. Chowdhury</b>  <b>Presented by Arindam Sikdar (RS)</b>	Open-Set Metric Learning for Person Re-Identification in the Wild	Twenty-Seventh IEEE International Conference on Image Processing ( <b>ICIP</b> )	Abu Dhabi, UAE	25-28 October, 2020
<b>Ananda S. Chowdhury</b>	Unconstrained Vision Guided UAV Based Safe Helicopter Landing	Twenty-Fifth IAPR International Conference on Pattern Recognition ( <b>ICPR</b> )	Milan, Italy	10-15 January, 2021
<b>Ananda S. Chowdhury</b>  <b>Presented by Jagannath Sethi (RS)</b>	Chaos Based Uncompressed Frame Level Video Encryption	Seventh International Conference on Mathematics and Computing ( <b>ICMC</b> )	Kolkata, India	2- 5 March, 2021
<b>Abhirupa Saha</b>	‘A THz Metasurface Coated SoC for SPR Excited Carcinoma Sensing’	International IEEE conference ICE-3 2020 International Conference on Electrical and Electronics Engineering (ICE3-2020)	MMMUT Gorakhpur (UP), India ICE3-2020	14-15 February, 2020
<b>Abhirupa Saha</b>	‘Meta sensing Ovarian Cancer Cells at THz from C Band Radiation	OPTRONIX 2020	India	8-10 June, 2020
<b>Gourab Adhikari</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	An Effective Use of Synthetic Aperture Radar Imaging Technique Over Optical Remote Sensing and Real Aperture Radar for Mapping of Earth Surface Features	International Conference on Innovations in Energy Management and Renewable Resources (IEMRE 2021)	Kolkata, India	5-7 February, 2021
<b>Pritam Kumar Ghosh</b>	Relevance of Colorspaces and Color channels in	International Conference on Innovations in Energy Management and	Kolkata, India	5-7 February, 2021

**Annual Report 2020-2021**

<b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	performing Image dehazing	Renewable Resources (IEMRE 2021)		
<b>Gourab Adhikari</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	An Edge Aware Polarimetric Co-Variance Feature Matrix Generation of Geo-Coded and Quad-Polarized Single Look Complex Synthetic Aperture Radar Data	International Conference on Innovations in Energy Management and Renewable Resources (IEMRE 2021)	Kolkata, India	5-7 February, 2021
<b>Avra Ghosh,</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Hardware Implementation of Image Dehazing Mechanism using Verilog HDL and Parallel DCP	IEEE Applied Signal Processing Conference (ASPCON)	Kolkata, India	7-9 October, 2020
<b>Shibarjun Mondal</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Polyps Segmentation using Fuzzy Thresholding in HSV Color Space	IEEE HYDCON 2020	Hyderabad, India	11-12 September, 2020
<b>Sriparna Banerjee</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	A Comprehensive Survey on Frost Filter and its Proposed Variants	International Conference on Communication and Electronics Systems (ICCES 2020)	Coimbatore, India	10-11 June, 2020
<b>Kyamelia Roy</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Capsule Neural Network Architecture Based Multi-class Fruit Image Classification	6th International Conference on Opto-Electronics and Applied Optics (Optronix)	Kolkata, India	8-10 June, 2020
<b>Sriparna Banerjee</b>	A Survey on Lee Filter and Its	6th International Conference on Opto-Electronics and	Kolkata, India	8-10 June, 2020

**Annual Report 2020-2021**

<b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Improved Variants	Applied Optics (Optronix)		
<b>Sriparna Banerjee</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	A Comprehensive Review of Median Filter, Hybrid Median Filter and Their Proposed Variants	6th International Conference on Opto-Electronics and Applied Optics (Optronix)	Kolkata, India	8-10 June, 2020
<b>Kyamelia Roy</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Classification of Citrus Fruits and Prediction of Their Largest Producer Based on Deep Learning Architectures	6th International Conference on Opto-Electronics and Applied Optics (Optronix)	Kolkata, India	8-10 June,2020
<b>Sriparna Banerjee</b>  <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Fuzzy Logic-Refined Color Channel Synergism based Image Dehazing	IEEE Region 10 Symposium Tensymp 2020	Dhaka, Bangladesh	5-7 June,2020
<b>Prof. Subir Kumar Sarkar</b>	Spondylosis Detection And Classification Of Cervical Images Using ATMFCMC Based Medical Image Segmentation Methods	International Conference on Advances in Electronics, Electrical & Computational Intelligence (ICAEEC)	Indian Institutes of Information Technology, Allahabad, Prayagraj, U.P, India	14 April, 2020
<b>Prof. Subir Kumar Sarkar</b>	Work function engineering based Broken Gate TFET: modeling and simulation based theoretical analysis	IEEE Region 10 Symposium (TENSYP).	Dhaka, Bangladesh	5-7, June 2020

**Annual Report 2020-2021**

<b>Prof. Subir Kumar Sarkar</b>	Impact of Self-Heating and Nano-Gap Filling Factor on AlGaAs/GaAs Junction-Less DG-MOSFET Based Biosensor for Early Stage Diagnostics” ,	IEEE Region 10 Symposium (TENSYP)	Dhaka, Bangladesh.	5-7 June, 2020
<b>Prof. Subir Kumar Sarkar</b>	Non-conventional solar cells developing cost effective sustainable Green Energy"	“Webinar Series on "Sustainable Energy"	BPPIMT, Kolkata.	19 June, 2020
<b>Prof. Subir Kumar Sarkar</b>	Transient and biodegradable electronic: E-Waste Management	2020 IEEE VLSI Device Circuit And System (VLSI DCS).	MIST, Kolkata, India.	18 -19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	GPSO Hybrid Algorithm for Rectilinear Steiner Tree Optimization	2020 IEEE VLSI Device Circuit And System (VLSI DCS).	MIST, Kolkata, India.	18-19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Optimizing FANET Routing Using a Hybrid Approach of Firefly Algorithm and ACO-Lévy Flight	2020 IEEE VLSI Device Circuit And System (VLSI DCS).	MIST, Kolkata, India.	18 -19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Effect of Body Thickness on Device Performance of Graded Channel Tri-Metal Double Gate Stack Gate TFET	2020 IEEE VLSI Device Circuit And System (VLSI DCS)	MIST, Kolkata, India.	18 -19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Double Gate p-n-p-n TFET with Hetero Oxide Dielectric and	2020 IEEE VLSI Device Circuit And System (VLSI DCS).	MIST, Kolkata, India.	18 -19 July, 2020

### Annual Report 2020-2021

	High-K Spacer Engineering			
<b>Prof. Subir Kumar Sarkar</b>	Cardiac MR Images Segmentation For Identification Of Cardiac Diseases Using Fuzzy Based Approach.	2020 Third International Conference on Smart Systems and Inventive Technology (ICSSIT)	Tirunelveli, India	20-22 August, 2020
<b>Prof. Subir Kumar Sarkar</b>	Medical Image Based Approach For Classification Of Several Stages For Retinopathy Disease Using Machine Learning Methodology.	Michael Faraday IET International Summit 2020 (MFIIS 2020)	Kolkata	3-4 October, 2020
<b>Prof. Subir Kumar Sarkar</b>	Security and Trust Management in Wireless self organizing Networks: A Strategic Challenge	2 <sup>nd</sup> International Conference on Ubiquitous and Emerging Concepts on Sensors & Transducers (UEM COS 2020)	University of Engineering and Management (UEM), Kolkata, India.	16-18 October, 2020,
<b>Prof. Subir Kumar Sarkar</b>	Trust Management in Wireless self organizing Networks: A Strategic Challenge	IEEE International Conference for Convergence in Engineering (ICCE 2020)	Dept. of ECE, Netaji Subhash Engineering College, Kolkata, India.	4-6 September, 2020
<b>Prof. Subir Kumar Sarkar</b>	Renovation and Innovation in nano device structures for performance improvement	International Conference on Electronics, Photonic, and Smart Technologies (IC-ePhaST '20)	SRM Institute of Science and Technology, Kattankulathur.	16 November, 2020,
<b>Prof. Subir Kumar Sarkar</b>	Computation without power dissipation: Low power VLSI a Prospective solution	International Conference on Electronics, Photonics and Smart Technologies (ICePhaST'20)	SRM Institute of Science and Technology, Kattankulathur.	16 November, 2020

### Annual Report 2020-2021

<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Chandrima Thakur</b></p> <p><b>Presenter: Nilanjan Das (BE Student)</b></p>	<p>Adaptive RF Energy Harvesting Relaying Protocol for Bidirectional Multi-Relay Multi-antenna Cooperative Network over Nakagami Fading</p>	<p>2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT), 2021</p>	<p>Bhilai, India</p>	<p>19-20 February, 2021</p>
<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Chandrima Thakur</b></p> <p><b>Presenter: Soham Roy (BE Student)</b></p>	<p>Throughput Analysis of Multi-Source Multi-Antenna Cooperative Relay Network with RF Energy Harvesting using Improved Relay Selection schemes</p>	<p>2020 4th International Conference on Electronics, Materials Engineering &amp; Nano-Technology (IEMENTech), 2020</p>	<p>Kolkata, India</p>	<p>2-4 October, 2020</p>
<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Chandrima Thakur (Presenter)</b></p>	<p>Secrecy Performance of an improved Interference-aided RF Energy Harvesting scheme in Two-Way Multi-Antenna Relay Network</p>	<p>2020 IEEE Applied Signal Processing Conference (ASPCON), 2020</p>	<p>Kolkata, India</p>	<p>7-9 October, 2020</p>
<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Chandrima Thakur</b></p> <p><b>Presenter: Pravat Biswas (BE Student)</b></p>	<p>Secrecy Performance of Novel Destination Assisted Jamming in Wireless Cooperative Networks under the Influence of Trusted and Untrusted Relays</p>	<p>National Conference on Electronics, Communication and Computation (NCECC), 2020</p>	<p>Nit Jamshedpur, India</p>	<p>5-6 September, 2020</p>

### Annual Report 2020-2021

<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Chandrima Thakur</b></p> <p><b>Presenter: Dipak Lal (ME Student)</b></p>	<p>Throughput Analysis Using Three-Step Two-Way Decode And Forward Multi Relay Network For Wireless Energy Harvesting</p>	<p>National Conference on Electronics, Communication and Computation (NCECC), 2020</p>	<p>Nit Jamshedpur, India</p>	<p>5-6 September, 2020</p>
<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Suvaditya Majumdar (Presenter)</b></p>	<p>Throughput and Error Function Joint optimization for CSS Based Field Area Network under Various Fading Environments</p>	<p>2020 IEEE Applied Signal Processing Conference (ASPCON), 2020</p>	<p>Kolkata, India</p>	<p>7-9 October, 2020</p>
<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Suvaditya Majumdar (Presenter)</b></p>	<p>Optimizing Capacity-Throughput Tradeoff for Enhanced Spectrum Sensing in CSS Based Cognitive Home Area Network</p>	<p>2020 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET), 2020</p>	<p>Chennai, India</p>	<p>4-6 August, 2020</p>
<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p> <p><b>RS: Suvaditya Majumdar (Presenter)</b></p>	<p>A Novel Group-Based Authentication and Key Agreement Protocol for IoT Enabled LTE/LTE-A Network</p>	<p>2020 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET), 2020</p>	<p>Chennai, India</p>	<p>4-6 August, 2020</p>
<p><b>Teacher: Prof. Sudipta Chattopadhyay</b></p>	<p>Design of an Improved RF Energy Harvesting Scheme in Two-way Relay Network for</p>	<p>2nd Doctoral Scholars' Colloquium (2020)</p>	<p>Jadavpur University, Kolkata</p>	<p>28 November, 2020</p>



### Annual Report 2020-2021

<b>RS: Chandrima Thakur (Presenter)</b>	Sensor Recharging			
<b>Pratyusha Rakshit</b>	Migration in Multi-Population Differential Evolution for Many Objective Optimization	IEEE World Congress on Computational Intelligence	Glasgow, UK	19-24 July, 2021
<b>Pratyusha Rakshit</b>	Q-Learning Induced Artificial Bee Colony for Noisy Optimization	IEEE World Congress on Computational Intelligence	Glasgow, UK	19-24 July, 2021

#### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Iti Saha Misra</b>	General Co-chair IEEE Advanced Communication Technologies and Signal Processing – 2020 (ACTS-2020)	NIT silchar	04-06 December, 2020
<b>Iti Saha Misra</b>	Virtual Event on 5G technologies on first responder and tactical networks, USA.	New Jersey	23 October, 2020
<b>Iti Saha Misra</b>	attended the R10 Governance Training webinars Virtual	USA	30 March -02 April, 2021
<b>Iti Saha Misra</b>	attended Keynote Speech delivered by Yahia M.M. antar President Elect IEEE AP-Society, Royal Military College, Canada	IEEE InCAp2020	17 December, One hour
<b>Iti Saha Misra</b>	Lecture on IEEE Milestones, IEEE Kolkata Section, Delivered by Sivaji Chakraborty	Kolkata	28 January, 2021, one hour
<b>Iti Saha Misra</b>	attended the Sir C.V. Raman Milestone Lecture by Amitava Sengupta on From Sundiala to Atomic Clocks- a glimpse”	Kolkata	7 November, 2020 1.30 hours
<b>Iti Saha Misra</b>	Distinguished Lecture delivered by Prof. Supriyo Dutta, Purdue University	Kolkata	One hour
<b>Prof. Subir Kumar Sarkar</b>	“FDP on Entrepreneurship, Innovation and Capital Venture”	Jadavpur University, Kolkata	24 February, 2021

### Annual Report 2020-2021

<b>Prof. Subir Kumar Sarkar</b>	“Renovation and Innovation in nano device structures for performance improvement”at International Conference on Electronics, Photonic, and Smart Technologies (IC-ePhaST '20)	Department of Electronics & Communication Engineering, SRM Institute of Science and Technology, Kattankulathur	16 November, 2020
<b>Prof. Subir Kumar Sarkar</b>	“FDP on Entrepreneurship, Innovation and Capital Venture”	Jadavpur University, Kolkata	24 February, 2021
<b>Prof. Subir Kumar Sarkar</b>	“Renovation and Innovation in nano device structures for performance improvement”at International Conference on Electronics, Photonic, and Smart Technologies (IC-ePhaST '20)	Department of Electronics & Communication Engineering, SRM Institute of Science and Technology, Kattankulathur	16 November, 2020
<b>Prof. Subir Kumar Sarkar</b>	"Computation without power dissipation: Low power VLSI a Prospective solution" in International Conference on Electronics, Photonics and Smart Technologies (ICePHaST'20)	Department of Electronics & Communication Engineering, SRM Institute of Science and Technology, Kattankulathur.	16 November, 2020
<b>Prof. Subir Kumar Sarkar</b>	“Security and Trust Management in Wireless selforganizing Networks: A Strategic Challenge”, in three days’ seminar on 2 <sup>nd</sup> International Conference on Ubiquitousand Emerging Concepts on Sensors & Transducers (UEM COS 2020)	organized by Dept. of ECE, University of Engineering and Management (UEM), Kolkata,India.	16-18 October, 2020
<b>Prof. Subir Kumar Sarkar</b>	“Trust Management in Wireless self organizing Networks: A Strategic Challenge”, in three days’ seminar on IEEE International Conference for Convergence in Engineering (ICCE 2020)	Dept. of ECE, Netaji Subhash Engineering College, Kolkata,India.	4-6 September, 2020
<b>Prof. Subir Kumar Sarkar</b>	“Transient and biodegradable electronic: EWaste Management” at webinar on, in IEEE VLSI DCS-2020	MSIT, Kolkata, West Bengal, India	18 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	“Security in Wireless Sensor Networks”, in One Week Faculty Development Programme on Image Authentication, WSN & IoT	Department of CSE, JIS College of Engineering, West Bengal,India.	22-26 June, 2020

**Annual Report 2020-2021**

<b>Kyamelia Roy</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Webinar <b>Future of Education post Covid</b> , by Prof Rajendra P Gupta, Former member of the National Education Policy Committee, Govt of India.	India	18 June, 2020
<b>Kyamelia Roy</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Webinar by Mr. Kaarthik Sivakumar, Principal Engineer, Cisco Systems on the topic "Security and Trust".	UEM Jaipur, India	22 June, 2020
<b>Kyamelia Roy</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	"Analog Beam Forming Network" organized by IEEE MTTs Chapter and IEEE Student Branch of NITT	IIT Kharagpur, India	6 July, 2020
<b>Kyamelia Roy</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	International Webinar on "Microfabrication Technology by Dr. Mariya Aleksandrova"	India	9 July, 2020
<b>Kyamelia Roy</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	IEM-UEM IETE Distinguished Lecture Webinar organized by IETE Student Forum, IEM-UEM Group. Title: Metamorphic Cryptography Platform	India	21 July, 2020
<b>Kyamelia Roy</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Webinar on "Education Abroad" by Hirasugar Institute of Technology, Nidhadoshi	Karnataka, India	6 July, 2020
<b>Kyamelia Roy</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Online Training on "MATLAB basics and image processing toolbox" by Yemi Foundation	India	20-22 July, 2020
<b>Gourab Adhikari</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Innovation in Energy Management and Renewable Resources IEMRE 2021	Virtual	5-7 February, 2021
<b>Gourab Adhikari</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Fundamentals of Remote Sensing and GIS Technology IIRS	Virtual	14-28 September, 2021
<b>Gourab Adhikari, Sourav Halder</b> <b>Teacher: Prof. Sheli Sinha Chaudhuri</b>	Advanced Hyperspectral Data Analysis Software-Tool AVYHAS	Virtual	11-12 February, 2021
<b>Teacher: Prof. Sudipta Chattopadhyay</b> <b>RS: Suvaditya Majumdar</b>	2020 IEEE Applied Signal Processing Conference (ASPCON), 2020	Kolkata, India	7-9 October, 2020

### Annual Report 2020-2021

<b>Teacher: Prof. Sudipta Chattopadhyay</b> <b>RS: Suvaditya Majumdar</b>	2020 International Conference on Wireless Communications Signal Processing and Networking (WCSPNET), 2020	Chennai, India	4-6 August, 2020
<b>Teacher: Prof. Sudipta Chattopadhyay</b> <b>RS: Suvaditya Majumdar</b>	2020 International Conference on Wireless Communications Signal Processing and Networking (WCSPNET), 2020	Chennai, India	4-6 August, 2020
<b>RS: Suvaditya Majumdar</b>	2nd Doctoral Scholars' Colloquium (2020)	Jadavpur University, Kolkata	28 November, 2020
<b>Sayan Chatterjee</b>	ARIIA 2021 - Orientation and Demonstration of Data Submission Portal	Ministry of Education's Innovation Cell	22 December 2020 at 10.30 AM and 2.30 – 4.30.
<b>Sayan Chatterjee</b>	Online Orientation Session on IIC3.0 for ERO Zone	Ministry of Education's Innovation Cell	7 December 2020 at 3.00 PM.
<b>Sayan Chatterjee</b>	Orientation cum Training Session on NISP Implementation	Ministry of Education's Innovation Cell	7 August, 2020 from 3-5 p.m
<b>Pratyusha Rakshit</b>	4th Bilbao Data Science Workshop (BIDAS)	Spain	7-8 November, 2020

**6. Major Achievements of the Department during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Ananda S. Chowdhury</b>	<b>Area Editorship</b> for the journal - <i>Pattern Recognition Letters</i>	Elsevier	-
<b>Ananda S. Chowdhury</b>	<b>Associate Editorship</b> for the journal – <i>IEEE Signal Processing Letters</i>	IEEE Signal Processing Society	-
<b>Ananda S. Chowdhury</b>	<b>Associate Editorship</b> for the journal – <i>Springer Nature Computer Science</i>	Springer	-
<b>Prof. Subir Kumar Sarkar</b>	Continued as Editor-In-Chief of the Journal International Journal of Nano Electronics, Circuits and System.	-	-
<b>Prof. Subir Kumar Sarkar</b>	Continued as Editorial board member of the Journal of Engineering, computing & Architecture.	-	-

### Annual Report 2020-2021

<b>Prof. Subir Kumar Sarkar</b>	He has delivered 122 Plenary/Keynote/ Invited talks, 19 IEEE Distinguished Lectures, and chaired 46 technical sessions in various academic programs in India and Abroad.	-	-
<b>Prof. Subir Kumar Sarkar</b>	Acting as Coordinator of IC Design and Fabrication center of ETCE department, JU	Jadavpur University	Kolkata
<b>Prof. Sudipta Chattopadhyay</b>	<b>Certificate of Best Paper was awarded</b> for the paper Entitled “Throughput Analysis using Three-Step Two-Way Decode and Forward Multi-Relay Network for Wireless Energy Harvesting” in the Session Communication Systems 2	National Conference on Electronics, Communication and Computation (NCECC 2020) organised by NIT Jamshedpu	Jamshedpur, India
<b>Prof. Sudipta Chattopadhyay</b>	<b>Certificate of Best Paper was awarded</b> for the Paper Entitled “Throughput Analysis of Multi-Source Multi-Antenna Cooperative Relay Network with RF Energy Harvesting using Improved Relay Selection Schemes” in the Track of Microwave and Antenna	IEEE International Conference on Electronics, Materials Engineering & Nano-Technology (IEMENTech 2020) organised by IEM Kolkata	Kolkata, India
<b>Prof. Sudipta Chattopadhyay</b>	<b>Certificate of Appreciation was awarded</b> for “Notable Services and Contributions towards the advancement of IEEE and the Engineering Professions” as Chair, Women in Engineering, Kolkata Section (2017 – 2019)	IEEE Region 10 (Asia Pacific Region)	IEEE Region 10 (Asia Pacific Region)
<b>Prof. Sudipta Chattopadhyay</b>	Nominated as IEEE Women in Engineering (WIE) Committee Member for Region 10 (Asia Pacific)	IEEE Region 10 (Asia Pacific)	IEEE Region 10 (Asia Pacific)
<b>Prof. Sudipta Chattopadhyay</b>	Nominated as Executive Committee Member of IEEE Kolkata Section	IEEE Kolkata Section	IEEE Kolkata Section
<b>Prof. Sudipta Chattopadhyay</b>	Nominated as Executive Committee Member of Communication Society, Kolkata Chapter	IEEE Kolkata Section	IEEE Kolkata Section
<b>Pratyusha Rakshit</b>	Postdoctoral Research Fellowship	Basque Center for Applied Mathematics, Bilbao, Spain	Spain

## Annual Report 2020-2021

### B. Any other Honours received by the Faculty Members:

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
Iti Saha Misra	Chair Elect, IEEE Kolkata Section	IEEE	Kolkata
Iti Saha Misra	Nominated BOS Member	Sister Nivedita University	Kolkata
Iti Saha Misra	Nominated BOS Member	Heritage Institute of Technology	Kolkata
Iti Saha Misra	External Examiner for PhD Viva Voce examination	University of Calcutta	Kolkata
Iti Saha Misra	External Examiner for PhD Viva Voce examination	VSSUT	Sambalpur , Orissa

### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Abhimanyu Sahu	University Foundation Day Research Award	Biju Patnaik University of Technology	Rourkela, Odisha
Arijit De	Research Scholarship	TCS	-
Annesya Banerjee, Final Year BE ETCE, 2021	Selected as the Runner Up of the IEEE Best Outgoing Student Award 2021 for outstanding performance in academia and co-curricular activities. Received an award grant of INR 50,000 along with citation. Only top 2 students have been selected from a pool of applicants from the SAARC countries. [2021]	IEEE India Council	New Delhi
Annesya Banerjee and Achal Nilhani	Top 30 – 5G Hackathon	Department of Telecommunications – Govt of India	India
Annesya Banerjee and Achal Nilhani	Best Hardware Design Award Best Presentation Award	Syracuse University	USA
Annesya Banerjee and Achal Nilhani	Top 32 Global Finalist – Better Health Hackathon	Microsoft and HCL	USA/India
Annesya Banerjee and Achal Nilhani	Global Rank 14 – Deep Noise Suppression Challenge 2	Microsoft	USA
Lidia Ghosh	Global Challenge Research Funding (GCRF) Post-Doctoral Fellowship,	Liverpool Hope University, UK	Funded to pursue research at Jadavpur

## Annual Report 2020-2021

			University, Kolkata
ME Student: Dipak Kumar Lal RS: Chandrima Thakur	Best Paper Award	NIT Jamshedpur	Jamshedpur, India
BE Students: Soham Roy, Pavel Kabiraj, Sayantan Dey RS: Chandrima Thakur	Best Paper Award	IEM, Kolkata	Kolkata, India
Prof. Bhaskar Gupta	Best Paper Award	OPTRONIX 2020	
Prof. Bhaskar Gupta	Best Paper Award	ICE3-2020	MMMUT Gorakhpur (UP), India

### D. Any Other Major Achievements:

1. **Prof. Subir Kumar Sarkar** has guided **57 Ph.D scholars** and PG thesis of 98 M.E/M.Tech students. Presently, 6 more scholars have been registered for Ph.D.
  2. **Prof. Subir Kumar Sarkar** has been invited several times as one of the expert members in various National Level Accreditation Board.
  3. **Prof. Subir Kumar Sarkar** acted as **Editorial board member of International Journal of Current Electronics and Telecommunications at PiscoMed Publishing Pte. Ltd.**
  4. **Prof. Subir Kumar Sarkar** acting as Editor-In-Chief of the Journal International Journal of Nano Electronics, Circuits and System.
  5. **Prof. Subir Kumar Sarkar** in Editorial board member of the Journal of Engineering, computing & Architecture.
  6. **Prof. Subir Kumar Sarkar** is a Senior Member of IEEE, IEEE Electron Device Society Distinguished Lecturer, Life fellow of The Institution of Engineers (India) and Life fellow of Institution of Electronics and Telecommunication Engineers, Life member of ISTE and Life member of Indian Association for the Cultivation of Science (IACS).
7. **Extension Activities of the Department / School during the year:**
- A. **Linkages with other institutes/ industries for internship / on-job training/ project work etc.**
1. **Prof. Iti Saha Misra:** NIT Silchar, NIT Rourkela for academic advancement through IEEE activities.
  2. **Prof. Subir Kumar Sarkar** has collaborative research activities in the field of Spintronics with Prof. Supriyo Bandyopadhyay of Virginia Commonwealth University, USA.
  3. **Prof. Subir Kumar Sarkar** is presently continuing collaborative research activities in nanodevices with Dr. Partha Bhattacharya of **Indian Institute of Engineering Science and Technology, Shibpur (former BESU)**.
  4. **Prof. Subir Kumar Sarkar** is presently continuing collaborative research work with:
    - Dr. Pranab Kishore Dutta and Mr. Swanirbhar Majumder of **North Eastern Regional Institute of Science and Technology (NERIST)**.
    - Dr. Ashish Kumar De and Prof. B. Maji of **National Institute of Technology, Durgapur**.
    - Dr. N. B. Singh of **Manipur Institute of Technology**.
    - Mr. Sudipta Ghosh and Mr. Subhrapratim Nath of **Meghnad Saha Institute of Technology, Kolkata**
    - Dr. Bijoy Kantha and Dr. Saheli Sarkhel of **Netaji Subhash Engineering College, Garia, Kolkata**
    - Mr. Dinesh Kumar Dash of **Parala Maharaja Engineering College, Berhampur, Odisha**

## Annual Report 2020-2021

- Mr. Bijoy Goswami of **Assam engineering College, Guwahati, Assam.**
- Dr. Manas Ranjan Nayak of **KIT, Bhubaneswar Odisha.**

### B. **Activities for the Society:**

A remarkable pertinent approach to detect Bird Flu, Avian influenza at an early stage is adopted by Prof. Subir Kumar Sarkar to control the severe damages in the area of poultry farm and society both economically and medically. Prof. Sarkar has implemented this in the project entitled “Cost effective and manpower efficient "Real-Time Implementation of RFID Based Surveillance System for Poultry Based Industry in Rural/ Urban Region to solve the avian influenza/bird flu problem”, supported by funding from Department of Higher Education, Science & Technology & Biotechnology (Sci. & Tech.), Govt. Of West Bengal. Being its Principal Investigator, he offered a solution of intensive condition monitoring by RFID electronic system of individual birds and timely reporting of data to the poultry farm manager to detect Avian Influenza at a very early stage. A wide variety of symptoms can occur when birds are infected with AI, and birds can often die without any apparent sign of disease. In general, sudden death with high mortality and no preceding signs should raise alarm bells for producers. Early detection and cost effective system design is very important in this aspect. It appears that 'Avian Influenza' detection is the genuine problem whereas RFID has tremendous potential for real life applications. Radio Frequency Identification (RFID) is the most reliable way to electronically identify, data capture, control, track and inventory items using RF communication. One area where it can provide significant advantages is in animal husbandry and the restriction of spreading of diseases or infection among the animals. So RFID based real time system is designed and implemented to provide a simple solution for early detection of Avian Influenza. A software interface using Visual Basic language and SQL server database management is developed to implement the low cost and power efficient RFID based Real time system. Apart from controlling the Avian Influenza, this system provides benefits like regular health monitoring, prevention of the selling of any affected chicken, detailed reporting, portability and easy handling of software. The system can be easily integrated with several poultry farms.

Designing Structured Query Language (SQL) based Visual Studio (front end) and SQL server database (back end) support software program has been considered here to be used in real time to receive data or information from any real world platform and can be stored into main computer system (SSMS ARCHITECTURE). In this case, both the DSQL and SQL server database has been used to execute the front and back end programming of the system. After completion of software implementation, the hardware parts are implemented using RFID Tags,

Readers and other accessories. So that according with these received data, the algorithm can detect bird flu affected chickens at a very early stage. The project work has tremendous commercial viability and potential to be socially accepted for the benefit of mankind. It finds a strong base in rural as well as urban areas especially among schedule caste/ schedule tribe/ other backyard caste people with marginal land, small livestock, low annual income and for whom poultry is the only source of livelihood.

### 8. **Students Progression during the year:**

#### A. **Progression to Higher Studies:**

<b>Number of students enrolled in higher education</b>	<b>Programmes graduated from</b>	<b>Programmes admitted to</b>	<b>Institutes admitted to</b>



## Annual Report 2020-2021

18	Bachelor in Engineering; Electronics & Telecommunication	MTech in Electronic Systems Engineering, MS, MTech in Microelectronics and VLSI, PhD in Computer Science, MASc in Electrical and Computer Engineering (Nano), MS in Electrical Engineering, PhD in ECE, Post Graduate Programme in Business Analytics, M.Tech.(R.A.) in Integrated Circuits and Systems, MTech in Electronics, MS through Research, M Tech in Visual Information and Embedded Systems Engineering	Indian Institute of Science (IISc), IIT Dharwad, University of California – Davis, University of Waterloo, Indian Institute of Technology Madras, Purdue University, IIT Kharagpur, Indian Institute of Management – Bangalore, IIT Bombay
1	METCE	Ph.D	IIT Kharagpur
1	MTech DMC	Ph.D	IIT Kharagpur

### B. Qualifying in State/ National/ International Level Examinations

Name of the Examination	No. of students selected/ qualified
GATE	32
CAT	6
GRE	5
TOFEL	5
Civil Services	1
State Government Services	1
Any Other	IELTS, XAT

## FOOD TECHNOLOGY AND BIOCHEMICAL ENGINEERING

Phone : 033-2457-2714/ 2379  
HOD : Dr. Dipankar Halder  
Dr. Prasanta Kumar Biswas (since 1.2.2021)

### 1. **Vision and Mission of the Department:**

- A. **Vision:** To impart quality education in Food Technology and Biochemical Engineering through application of scientific and technological concepts to ensure value addition of agricultural and allied resources, to cater to the needs of industry and ensure food safety and security for society enmasse.

## Annual Report 2020-2021

### B. Mission:

- To develop technological and engineering capabilities at par with global standards.
- To meet relevant industrial and societal needs
- To motivate students to high quality research and scholarly activities.
- To promote innovative and collaboration activities for facing emerging challenges including extension work and entrepreneurship development.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.E.	4	1 <sup>st</sup> year	32
		2 <sup>nd</sup> year	36
M.Tech	2	2020-21	9
Ph.D	-	2020-21	36

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
2	4	1	7

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

Food fortification, drying; Solid state fermentation, enzymes, antioxidants, Green Technologies of Extraction, Nutraceuticals and functional food, Biomedicines for Oxidative Stress Disorders, Edible Oils and Frying Applications, Electronic Nose Applications in Agro Commodities, Micro and nano-encapsulation, Environment benign synthesis of metal nanoparticles and their application in waste water treatment, food safety and food packaging, food adulteration, cold plasma technology, nanoparticle in agriculture, Bioremediation, fermented food, enzyme technology.

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Serotonin-melatonin-rich nutraceutical food and supplements from gamma-irradiated button mushrooms	Individual	Paramita Bhattacharjee	Board of Research in Nuclear Sciences (BRNS), DAEW, GoI	3 years (2020-2023)
Valorization of tomatoes employing gamma-irradiation: Ultrasonic-assisted green extraction of serotonin-melatonin from gamma irradiated tomatoes for development of a nutraceutical food product and a	Individual		Science & Technology and Biotechnology Department, Govt. of West Bengal	3 years (2020-2023)

### Annual Report 2020-2021

nanoliposomal food supplement				
Fermentative production of microbial asparaginase enzyme and its application to high temperature processed foods for acrylamide mitigation	Individual	Sunita Adhikari (Nee Pramanik)	Science & Technology and Biotechnology Department, Govt. of West Bengal	3 years (2018-2021)
	Individual	Debabrata Bera	Science & Technology and Biotechnology Department, Govt. of West Bengal	3 years
Valorization of POME	Individual		Godrej Agrovet Ltd.	

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
3	3

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

- Sayani Pal and Paramita Bhattacharjee, Gamma irradiation of trilamellate packaged yellow corn (*Zea mays*) kernels enhances lutein content and shelf life, *Journal of Food Processing and Preservation*, 44(9), e14641, 2020.
- Soumi Chakraborty and Paramita Bhattacharjee, Ultrasonication-assisted extraction of a melatonin-rich erucic acid-lean nutraceutical supplement from mustard seeds: An antioxidant synergy in the extract by reductionism, *Journal of Food Science and Technology*, 57 (4), 1278-1289, 2020.
- Kaninika Paul, Soumi Chakraborty, Priyanka Mallick, Paramita Bhattacharjee, Tapan Kumar Pal, Nilendra Chatterjee, and Saikat Chakrabarti, Supercritical carbon dioxide extracts of small cardamom and yellow mustard seeds have fasting hypoglycaemic effects: diabetic rat, predictive iHOMA2 models and molecular docking study. *British Journal of Nutrition*, 125(4), 377-388, 2021.
- Susmit Maitra, Debapriya Maity, Pradyut Kundu, Sunita Adhikari (Nee Pramanik), Isolation and identification of a bacterial strain from soil for bioremediation of phenol for pollution control. *J. Indian Chem. Soc.*, Vol. 97, April 2020, pp. 607-612.
- Abhishek Das, Pradyut Kundu, Sunita Adhikari (Nee Pramanik), Characteristics and treatments of dairy industry wastewater in a suspended growth batch reactor. *J. Indian Chem. Soc.*, Vol. 97, No. 9a, September 2020, pp. 1323-1327.
- Mukulika Bagchi, Debabrata Bera, Sunita Adhikari (Nee Pramanik), Biosorption of an azo dye Reactive Blue 4 from aqueous solution using dead and CMC immobilized biomass of *Rhizopusoryzae* (MTCC 262). *Bioremediation Journal*. Published online on 17 February, 2021.
- Papan K Hor, Kuntal Ghosh, Suman K Halder, Jyoti P Soren, Debabrata Goswami, Debabrata Bera, Som Nath Singh, Sanjai K Dwivedi, Saswati Parua Mondal, Maidul Hossain, Keshab C Mondal, Evaluation of nutrient profile, biochemical composition and anti-gastric ulcer potentialities

## Annual Report 2020-2021

- of khambir, a leavened flat bread, Food Chemistry, May, 2021, DOI: 10.1016/j.foodchem.2020.128824.
- Sultana, A. and Ghosh, U.: Estimation of effective moisture diffusivity of Red amaranth leaves (*Amaranthus tricolor L.*) for thin-layer drying technology. International Journal of Agricultural Technology 17(2):737-752.2021
  - Atreyi Sarkar and Uma Ghosh,: Fortification of dairy product shrikhand with natural antioxidant from the extract of tamarind seed. Annals. Food Science and Technology, 21, 3, 414-422. 2020,
  - Soumik Banerjee, and Uma Ghosh,: Isolation and identification of a strain for the production of biosurfactant.. Journal of the Maharaja Sayajirao University of Baroda, 54.2 (XIV)165-171.2020.
  - Tapasi Polley and Uma Ghosh: Optimisation of fungal glucoamylase production by Response Surface Methodology and characterisation of the purified enzyme. Plant Science Today 7(3): 456–462. 2020.
  - Swati Roy. Avik Mukherjee, Uma Ghosh: Bio-alcohol Generation from Agro-industrial St Wastes: A Comprehensive Review; Journal of biofuels,12(1), 9- 18,2021.
  - Priyanka Ghosh, Uma Ghosh Statistical optimization of laccase production by isolated strain *Aspergillus flavus* PUF5 utilising ribbed gourd peels as the substrate and enzyme application on apple juice clarification. Indian Chemical Engineer:62(4).427-438,2020.
  - Abhishek Dutta, Aakash S. Subramanian, Runu Chakraborty, Ferruh Erdogdu, Numerical modeling of water uptake in white rice (*Oryza sativa L.*) using variable diffusivity approach, **Biosystems Engineering**, 191 (3), 116-128, 2020.
  - Tanmay Sarkar, Molla Salauddin, Sudipta Kumar Hazra, Runu Chakraborty, Effect of cutting edge drying technology on the physicochemical and bioactive components of mango (Langra variety) leather, **Journal of Agriculture and Food Research**, 2(12), 100074, 2020.
  - Tanmay Sarkar, Molla Salauddin, Sudipta Kumar Hazra, Runu Chakraborty, Artificial neural network modelling approach of drying kinetics evolution for hot air oven, microwave, microwave convective and freeze dried pineapple, **SN Applied Sciences**, 2, 1621, 2020.
  - Tanmay Sarkar, Molla Salauddin, Sudipta Kumar Hazra, Runu Chakraborty, The impact of raw and differently dried pineapple (*Ananas comosus*) fortification on the vitamins, organic acid and carotene profile of dairy rasgulla (sweetened cheese ball), **Heliyon**, 6(10), E05233, 2020.
  - Tanmay Sarkar, Molla Salauddin, Sudipta Kumar Hazra, Hassan I Sheikh, Siddhartha Pati, Runu Chakraborty, Characterization of phytochemicals, minerals and in vitro medicinal activities of bael (*Aegle marmelos L.*) pulp and differently dried edible leathers, **Heliyon**, 6(10), E05382, 2020.
  - Tanmay Sarkar, Molla Salauddin, Runu Chakraborty, In-depth pharmacological and nutritional properties of bael (*Aegle marmelos*): A critical review, **Journal of Agriculture and Food Research**, 2(12), 100081, 2020.
  - Tanmay Sarkar, Molla Salauddin, Sudipta Kumar Hazra, Hassan I Sheikh, Siddhartha Pati, Runu Chakraborty, Application of raw and differently dried Pineapple (*Ananas comosus*) pulp on Rasgulla (Sweetened Casein Ball) to enhance its phenolic profile, shelflife and in-vitro digestibility characteristics, **Journal of Food Processing and Preservation**, 45, e15233, 2021.
  - Tanmay Sarkar, Molla Salauddin, Sudipta Kumar Hazra, Runu Chakraborty, Effect of hot air oven, microwave, microwave convective, freeze dried pineapple pulp on storage stability of casein ball (Rasgulla), **Journal of Microbiology, Biotechnology and Food Sciences**, 10(4), 674–679, 2021
  - Tanmay Sarkar, Molla Salauddin, Tanupriya Choudhury, Jung-Sup Um, Siddhartha Pati, Sudipta Kumar Hazra, Runu Chakraborty Spatial optimisation of mango leather production and colour estimation through conventional and novel digital image analysis technique, **Spatial Information Research**, 29, 439–453, 2021.
  - Suman Kumar Saha, Runu Chakraborty, Effect of deep eutectic solvent's characteristics on extraction and bioactivity of polyphenols from Sapodilla pulp, **Chemical Papers**, 75, 691–702, 2021.
  - Phytosynthesis of silver nanoparticles using *Zingiber officinale* extract: evaluation of their catalytic and antibacterial activities; Journal of Dispersion Science and Technology (Taylor & Francis); 41(2020)14
  - Varieties of mushrooms and their nutraceutical importance: a systematic review; Journal of Clinical and Diagnostic Research ; 15(2021)1-6

## Annual Report 2020-2021

- Biosorption of organic dye Acridine orange from aqueous solution using dry biomass of *Bacillus cereus* M 1 16; Archives of Microbiology; 203(2021)3811- 3823.
- Mala Thapa, Tapodhara Datta Majumdar, Chandan Kumar Ghosh, Abhishek Mukherjee and Prasanta Kumar Biswas, Application of Zinc Sulfide Nanoparticles to Augment the Nutritional status of the Mungbean [*Vignaradiata*(L.) R.Wilczek] Plant; ACS Food Science and Technology, 2021 1(9),1595-1604, DOI: 10.1021/acsfoodscitech.1c00116.

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Paramita Bhattacharjee	Dr. Nabarun Bhattacharyya,	Associate Director, C-DAC, Kolkata	Research	2015 - Ongoing
	Dr. Tapan Kumar Pal	Technical Advisor, M/s TAAB Biostudy Services	Research	2016 - Ongoing
	Mr. Bidhan Das	Deputy Director and Regional Head, Indian Institute of Packaging, Kolkata	Research	2018 - Ongoing
Debabrata Bera	Dr. Chandan Kumar Ghosh	School of Material Science and Nanotechnology, Jadavpur University.	Research	2020-ongoing
	Dr. Lakshmishri Roy	Department of Food Technology, Techno Main, Salt Lake	Research	2016-ongoing
Dr. Prasanta Kumar Biswas	Dr. Abhishek Mukherjee	Biological Sciences Division, Indian Statistical Institute, Rose Villa, Giridih, 815 301, Jharkhand, India.	Research	2021- ongoing

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### A. Books/Monographs Published:

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Paramita Bhattacharjee	Supercritical Carbon dioxide (SC-CO <sub>2</sub> ) Extraction of Piperine: A Green Extraction Method for Biomolecule of Therapeutic Importance, Chapter 5	Apple Academic Press, USA	9781771889124	In Press, February 2021
Paramita Bhattacharjee	Assessment of Quality of Confectionery Products using	Apple Academic Press, USA	9781771889124	In Press, February 2021

**Annual Report 2020-2021**

	Electronic Nose Technology, Chapter 4			
Sunita Adhikari (Nee Pramanik)	Mushroom Cultivation [MRCT] for the students of Vocational Education and Skill Development	West Bengal State Council of Technical and Vocational Education and Skill Development	-	In Press
Sunita Adhikari (Nee Pramanik)	Fruits & Vegetables Product Manufacturing for the students of Vocational Education and Skill Development	West Bengal State Council of Technical and Vocational Education and Skill Development	-	In Press
Sunita Adhikari (Nee Pramanik)	Chapter on Genetically modified food: Safety assessment and future challenges. Research on Food Process Engineering and Applications	Apple Academic Press, partnered with CRC Press	-	Chapter with editorial team
Sunita Adhikari (Nee Pramanik)	Chapter on Additives and preservatives used in Food processing and preservation, and their health implication Food Chemistry: Role of Additives, Preservatives & Adulteration	Wiley-Scrivener Publisher	-	Proof Reading Complete
Sunita Adhikari (Nee Pramanik)	Chapter on Enzyme technology in value addition of fruits and vegetable juice processing Value-Addition in Beverages through Enzyme Technology	Elsevier	-	Chapter with Editorial Project Manager
Uma Ghosh	Identification of Aqueous Extract of Red Amaranth Leaves by HPLC and LC-MS.	Springer		2020
	Application of Used Tea as Solid Matrix for Immobilization of Alkaline Protease by OVAT Method.	Springer		2020
Runu Chakraborty	Chapter on Antioxidant Properties and Health Benefits of Green Tea	Nova Science Publishers		2021
Dipankar Halder	Emerging Technologies in Food Preservations”	CRC Press, Taylor & Francis Group	9780367675158	Accepted, 2021

**Annual Report 2020-2021**

--	--	--	--	--

**C. Seminar/Workshop/Conference/Symposium Organized:**  
(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Central Calcutta Society for Advancement of Human Development & Research, The Foundation Day Webinar on 'Covid 19: Science & Management'	Dr. Asima Lahiri Majumder (Organizing Secretary), Dr. Paramita Bhattacharjee (Coordinator)	-	Webinar	July 27, 2020
Central Calcutta Society for Advancement of Human Development & Research, The Foundation Day Webinar on 'Kala azar and Diarrhoea: Diseases that won't go away'		-	Webinar	18 December, 2020
TEQIP III sponsored Two day National Seminar (in Virtual format) on Academics and employability in COVID ERA: Roadmap for Food and Biochemical Sectors' organized by Dept. of FTBE, JU	Dr. Prasanta Kumar Biswas, HOD Prof. Runu Chakraborty Dr. Sunita Adhikai nee Pramanik	-	Webinar	16- 17 March, 2021.

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
Paramita Bhattacharjee	TEQIP-III sponsored Three days National Webinar/Video Workshop on 'Transforming Pedagogy in India organized by NIT-Jamshedpur	Webinar	1- 3 August, 2020
	TEQIP-III sponsored One Week FDP on 'Efficacy of Digital Pedagogy for Effective Online Teaching Learning', under Twinning activity organized by BVB's Sardar Patel College of Engineering, Mumbai	Webinar	8-15 October, 2020
	Technical Education Quality Improvement Programme-III on "Biomass valorization and its life cycle assessment (LCA)"	Webinar	December 1-5, 2020

### Annual Report 2020-2021

Sunita Adhikari (Nee Pramanik)	Dairy and Food process and products technology	NPTEL-AICTE FDP	September-December, 2020
	Thermal Operations in Food Process Engineering: Theory and Applications	NPTEL-AICTE FDP	September-December, 2020
	Thermal Processing of Foods	NPTEL-AICTE FDP	September-December, 2020
	TEQIP-III sponsored One Week FDP on 'Efficacy of Digital Pedagogy for Effective Online Teaching Learning', under Twinning activity organized by BVB's Sardar Patel College of Engineering, Mumbai	Webinar	8-15 October, 2020
	TEQIP-III sponsored Three days National Webinar/Video Workshop on 'Transforming Pedagogy in India organized by NIT-Jamshedpur	Webinar	1-3 August, 2020
	WEBINAR-FET-JU R&D Expo 2021 organized by R&D Committee, TEQIP-III, Jadavpur University	Webinar	26-27 February, 2021
	Short Term Course on Recent Advances on Environmental Biotechnology organized by TEQIP -KIT, NPIU, IIT Kharagpur	Webinar	05-09 October, 2020

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Paramita Bhattacharjee</b>	Invited lecture	International Conference on Natural Products and Traditional Medicine, organized by PULSUS Group, Berkshire, UK and the Editors of Current Research: Integrative Medicine, American Journal of Phytomedicine and Clinical Therapeutics & Journal of Yoga and Physical Therapy	Webinar	July 13, 2020
	Invited lecture	10th International Science Online Webinar, organized by World Science Congress, Kolkata	Webinar	August 14, 2020
	Invited lecture	Regulations and Safety Measures in Food Industry, organized by the Department of Zoology and Microbiology, Maulana Azad College, Kolkata	Webinar	September 18, 2020
	Invited lecture	Research Methodology in Basic Science, Utkal University, Department of Chemistry, Bhubaneswar, Orissa	Webinar	February 22, 2021
<b>Debabrata Bera</b>	Invited Lecture	Recent Trends in Research on Food Nutrition and Health,	Webinar	March 19, 2021



**Annual Report 2020-2021**

		Department of Food Technology, University of North Bengal.		
--	--	---	--	--

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Paramita Bhattacharjee</b>	Green Technologies and Electronic Nose Applications in Processed Food Products: Food Preservation, Product Development, Nutraceutical Design for Mitigation of Oxidative Stress Disorders; and Electronic Nose Applications to Complement Biochemical Assays	Green technologies and electronic nose applications in foods: Food Preservation, Product development, Nutraceutical design for mitigation of oxidative stress disorders; and Electronic nose applications to complement biochemical assays organized by R&D Committee, TEQIP-III, JU	Jadavpur University	February 26-27, 2021
<b>Sunita Adhikari (Nee Pramanik)</b>	Bioremediation of dairy industry wastewater using combined bacterial and algal treatment; Microbial production of asparaginase enzyme and its application for acrylamide mitigation; and Development of ethnic foods	WEBINAR-FET-JU R&D Expo 2021 organized by R&D Committee, TEQIP-III, Jadavpur University	Jadavpur University	February 26-27, 2021
<b>Uma Ghosh</b>	Production, purification and characterization of biosurfactant isolated from <i>Bacillus oceanisediminis</i> H2,	Materials Today: Proceedings, <a href="https://doi.org/10.1016/j.matpr.2021.04.366">https://doi.org/10.1016/j.matpr.2021.04.366</a> .	Elsevier Ltd.	2020
	Effect of Processing on Nutritional Quality of Vegetable	two-day Webinar Organized by R & D Committee, TEQIP-III,	Jadavpur University	26-27 February, 2021

**6. Major Achievements of the Department/School/Centre during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
Sunita Adhikari (Nee Pramanik)	Topper of NPTEL-AICTE FDP course on Dairy and Food process	NPTEL-AICTE	Online

**Annual Report 2020-2021**

	and products technology Sep-Dec, 2020		
--	---------------------------------------	--	--

**B. Any other Honours received by the Faculty Members:**

<b>Name of the Faculty Member</b>	<b>Name of the Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Paramita Bhattacharjee</b>	Editorial Board Member of the international journal 'Recent Patents on Biotechnology	Bentham Science	-
	Member of Subject Expert Committee (SEC) of "Health Care and Nutrition (HCN)" in Women Scientist Scheme B (WOS-B), KIRAN Division, Department of Science and Technology (DST), GoI	DST, New Delhi, GoI	-
<b>Sunita Adhikari (Nee Pramanik)</b>	Expert Committee member for developing QP on 'Alcoholic Beverage Associate'	PoschimBanga Society for Skill Development, Govt. of West Bengal	-
	Expert Committee member for developing QP on 'ChhanaMisti Maker'	PoschimBanga Society for Skill Development, Govt. of West Bengal	-
	Expert Committee member for developing QP on 'ChhanaMisti Maker'	PoschimBanga Society for Skill Development, Govt. of West Bengal	-
	Expert Committee member for developing QP on 'Hand Made Candy'	PoschimBanga Society for Skill Development, Govt. of West Bengal	-
	Expert Committee member for checking the eligibility criteria assessors for the course Fruits & Vegetables Product Manufacturing in Food Industry Sector	PoschimBanga Society for Skill Development, Govt. of West Bengal	-
	Reviewer of Manuscript submitted in International Conference ATIPC 2020	Civil Engineering Department, IEST, Shibpur	
	Question Paper moderator of HS, Vocational Examination, 2021	West Bengal State Council of Technical & Vocational Education & Skill development	-
	Syllabus sub-committee member of Diploma in Food Processing Technology course.	West Bengal State Council of Technical & Vocational Education & Skill development	-
	External expert of BOS, Dept. of FT, GNIT	Dept. of FT, GNIT	-

**7. Extension Activities of the Department / School during the year:**

**A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

## Annual Report 2020-2021

Technocolab; Allied Blenders & Distillers pvt.ltd; ONganic Foods Pvt Ltd; ITC Ltd; Britannia Industries Ltd; Serum Institute of India Pvt. Ltd.; SOBISCO; Parle Products Pvt. Ltd; Mondelēz International; Bakery and Dairy EUM; PepsiCo; Bengal Beverages Pvt. Ltd; Ishaana Nutraceuticals Pvt. Ltd. Etc.

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
2	BFTBE	MFTBE	Jadavpur University
2	BFTBE	Food Science Technology	ICT Mumbai
1	BFTBE		Katholieke Universiteit Leuven
1	BFTBE		University of Nebraska

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
GATE	6
TOFEL	2

### INFORMATION TECHNOLOGY

[Salt Lake Campus]

Phone: 033-2340-6128/6129

033-2335-8321

H.O.D : Prof. Uttam Kumar Roy

E-mail: [hodit@jadavpuruniversity.in](mailto:hodit@jadavpuruniversity.in)

#### 1. Vision and Mission of the Department:

A. **Vision:** To provide young undergraduate and postgraduate students a responsive research environment and quality education in Information Technology to contribute in education, industry and society at large.

#### B. Mission:

**M1:** To nurture and strengthen professional potential of undergraduate and postgraduate students to the highest level.

**M2:** To provide international standard infrastructure for quality teaching, research and development in Information Technology.

## Annual Report 2020-2021

**M3:** To undertake research challenges to explore new vistas of Information and Communication Technology for sustainable development in a value-based society.

**M4:** To encourage teamwork for undertaking real life and global challenges.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.E.(Information Technology)	4 years	1 <sup>st</sup> year	86
		2 <sup>nd</sup> year	10% of 86
M.E (Software Engineering)	2 years	1st year	25
6-Semester M.E. (Software Engineering) for TCS sponsored students	3 years (Evening)	1st year	20

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
4	1	2 9 (Contractual)	8

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

All teachers are actively engaged in research activities. The thrust areas of the department may be classified as follows.

- a. Image processing, Video Compression, Pattern Recognition
- b. Distributed Object Computing, Middleware
- c. Middleware in Mobile Computing, Mobile Ad hoc Networks
- d. Artificial Intelligence, Machine Learning, NLP
- e. Network Architecture, Routing Protocols
- f. Parallel Processing, Cryptography and Network Security, Distributed Computing
- g. Data Mining and Knowledge Discovery, Cloud Computing, Biodiversity
- f. Bioinformatics, Audio processing, RFID, Sensor Networks
- h. Distributed Algorithms & Swarm Robotics.
- i. Mobile Computing, Vehicular Networks

#### B. Major Research Projects :

**Annual Report 2020-2021**

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
Development of High speed MANET for intelligent collaboration	Individual	Prof. Samiran Chattopadhyay [Co-Investigator]	DRDO	2019 - 2021
National Digital Library	Individual	Prof. Samiran Chattopadhyay (Consultant)	MHRD (IIT Kharagpur)	2018 - 2020
Cosmic Quest	Individual	Prof. Samiran Chattopadhyay [Co-PI]	VigyanPrasar (DST, GoI)	
Algorithms to ensure the privacy and security in online social networking sites.	Individual	Munmun Bhattacharya	RUSA 2.0	2 years
A Fairness Based Market Linkage Framework for Woman Self Help Group to Assuage the Rural- Urban Information Asymmetry Using ICT	Individual	Parama Bhaumik	RUSA 2.0	2 years
Dynamic Radio Resource Allocation Strategy for 5G D2D Communications in Rural Areas	Individual	PalashKundu	RUSA 2.0	2 years
Integrated Health Analytics and Services	Departmental	Prof Bhaskar Sardar	RUSA 2.0	2 Years
Novel Solutions Using Innovations on the Proposed LTE-A D2D Communication Model for Smart Governance in the 5G Era	Individual	Prof Bhaskar Sardar	DST SERB	2018-2021
Faster and Secured Communications in 5G	Departmental	Bibhas Chandra Dhara	RUSA 2.0	2 years
Partial image encryption to design a faster image encryption	Individual	Bibhas Chandra Dhara	RUSA 2.0	2 years
A model of smart and intelligent abstractive sentence summarization	Individual	Tohida Rehman	RUSA 2.0	2 years
Integration of Data Mining in Biodiversity Application to Forest Diversity	Individual	Kartick Chandra Mondal	DST, WOS-A	2018-2021

## Annual Report 2020-2021

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No.,Year of publication)

1. Munmun Bhattacharya, Sandip Roy, KamleshMistry, Hubert PH Shum, and SamiranChattopadhyay. "A privacy-preserving efficient location-sharing scheme for mobile online social network applications." *IEEE Access* 8 (2020): 221330-221351.
2. Priyajit Biswas, S. Kandar and B. C. Dhara, "An image encryption scheme using sequence generated by interval bisection of polynomial function", *Multimedia Tools and Applications*, vol - 23, pp. 1 -24, August 2020
3. S. Kandar and B. C. Dhara, "A verifiable secret sharing scheme with combiner verification and cheater identification", *Journal of Information Security and Applications*, vol - 51, pp. 102430, April 2020.
4. Swarna Kamal Paul, Parama Bhaumik, "A multivariate spatiotemporal model of COVID-19 epidemic using ensemble of ConvLSTM networks", accepted for publication in *Journal of The Institution of Engineers (India): Series B*. 2020.
5. Hiren Dutta, Parama Bhaumik, "Survey on systems architecture for internet of things (IoT)", *i-manager's Journal on Software Engineering*, Volume 15. No. 1, ISSN-0973-5151, E-ISSN- 2230-7168, July - September 2020.
6. Moumita Ghosh, Anirban Roy, **Kartick Chandra Mondal**, "Knowledge Discovery of Sundarban Mangrove Species: A Way Forward for Managing Species Biodiversity", *SN Computer Science*, **3**, Article number: 18 (2022), <https://doi.org/10.1007/s42979-021-00869-1>, Electronic ISSN: 2661-8907
7. Anindita Sarkar Mondal, Somnath Mukhopadhyay, **Kartick Chandra Mondal**, Samiran Chattopadhyay, (2021) "A Double Threshold Based Power Aware Honey Bee Cloud Load Balancing Algorithm" *SN Computer Science*, Vol. **2**, Article number: 395 (2021), <https://doi.org/10.1007/s42979-021-00771-w>, Electronic ISSN:2661-8907
8. Moumita Ghosh, Pritam Sil, Anirban Roy, Rohmatul Fajriyah, **Kartick Chandra Mondal**, (2021) "Finding Prediction of Interaction between SARS-CoV-2 and Human Protein: A Data Driven Approach", *Journal of The Institution of Engineers (India): Series B*, Pages: 1-10, <https://doi.org/10.1007/s40031-021-00569-7>, ElectronicISSN: 2250-2114, Print ISSN: 2250-2106
9. Debasmita Pal, **Kartick Chandra Mondal**, "Predicting Novel Interactions from HIV-1-Human PPI Data Integrated with Protein Signatures and GO Annotations", *International Journal of Bioinformatics Research and Applications (IJBRA)*, Vol.xx, No.xx, pp. xx - xx, 2020
10. Soumyajit Saha, Manosij Ghosh, Soulib Ghosh, Shibaprasad Sen, **Pawan Kumar Singh**, Zong Woo Geem, Ram Sarkar: "Feature selection for Facial Emotion Recognition using Cosine Similarity based Harmony Search Algorithm", In: *Applied Sciences (Special Issue: Harmony Search Algorithm - Theoretical Background and Practical Applications)*, 10(8), pp. 1-22, 2020 (DOI:<https://doi.org/10.3390/app10082816>)
11. Bitanu Chatterjee, Trinav Bhattacharyya, Kushal Kanti Ghosh, **Pawan Kumar Singh**, Zong Woo Geem, Ram Sarkar: "Late Acceptance Hill Climbing Based Social Ski Driver Algorithm for Feature Selection", In: *IEEE Access*, Vol. 8, Issue 1, pp. 75393-75408, 2020 (DOI: 10.1109/ACCESS.2020.2988157).

## Annual Report 2020-2021

12. Kushal Kanti Ghosh, Shameem Ahmed, **Pawan Kumar Singh**, Zong Woo Geem, Ram Sarkar: “*Improved Binary Sailfish Optimizer based on Adaptive  $\beta$ -Hill Climbing for Feature Selection*”, In: IEEE Access, Vol. 8, Issue 1, pp. 83548-83560, 2020 (DOI: 10.1109/ACCESS.2020.2991543).
13. Kushal Kant iGhosh, **Pawan Kumar Singh**, Junhee Hong, Zong Woo Geem, Ram Sarkar: “*Binary Social Mimic Optimization Algorithm With X-Shaped Transfer Function for Feature Selection*”, In: IEEE Access, Vol. 8, Issue 1, pp. 97890-97906, 2020 (DOI: 10.1109/ACCESS.2020.2996611).
14. Shameem Ahmed, KushalKantiGhosh, **Pawan Kumar Singh**, Zong Woo Geem, Ram Sarkar: “*Hybrid of Harmony Search Algorithm and Ring Theory-Based Evolutionary Algorithm for Feature Selection*”, In: IEEE Access, Vol. 8, Issue 1, pp. 102629-102645, 2020 (DOI: 10.1109/ACCESS.2020.2999093).
15. Soulib Ghosh, Agneet Chatterjee, **Pawan Kumar Singh**, Showmik Bhowmik, Ram Sarkar: “*Language-invariant novel feature descriptors for handwritten numeral recognition*”, In: The Visual Computer, Springer Publishers, 2020 (DOI:https://doi.org/10.1007/s00371-020-01938-x)
16. Debadyuti Mukherjee, RiktimMondal, **Pawan Kumar Singh**, Ram Sarkar, DebotoshBhattacharjee: “*EnsemConvNet: A Deep Learning approach for Human Activity Recognition Using Smartphone Sensors for Healthcare Applications*”, In: Multimedia Tools and Applications, Springer Publishers, Vol. 79, No. 41-42, pp. 31663-31690, 2020 (DOI:https://doi.org/10.1007/s11042-020-09537-7)
17. Avinandan Banerjee, **Pawan Kumar Singh**, Ram Sarkar: “*Fuzzy Integral based CNN Classifier Fusion for 3D Skeleton Action Recognition*”, In: IEEE Transactions on Circuits and Systems for Video Technology, Vol. 31, Issue 6, pp. 2206-2216, 2021 (DOI:10.1109/TCSVT.2020.3019293)
18. Khalid Hassan Sheikh, Shameem, Ahmed, Krishnendu Mukhopadhyay, **Pawan Kumar Singh**, Jin Hee Yoon, Zong Woo Geem, Ram Sarkar: “*EHHM: Electrical Harmony Based Hybrid Meta-Heuristic for Feature Selection*”, In: IEEE Access, Vol. 8, pp. 158125-158141, 2020 (DOI: 10.1109/ACCESS.2020.3019809).
19. Aankit Das, Samarpan Guha, **Pawan Kumar Singh**, Ali Ahmadian, Norazak Senu, Ram Sarkar: “*A Hybrid Meta-heuristic Feature Selection Method for Identification of Indian Spoken Languages From Audio Signals*”, In: IEEE Access, Vol. 8, pp. 181432-181449, 2020 (DOI: 10.1109/ACCESS.2020.3028241).
20. Samarpan Guha, Aankit Das, **Pawan Kumar Singh**, Ali Ahmadian, Norazak Senu, Ram Sarkar: “*Hybrid Feature Selection Method Based on Harmony Search and Naked Mole-Rat Algorithms for Spoken Language Identification From Audio Signals*”, In: IEEE Access, Vol. 8, pp. 182868-182887, 2020 (DOI: 10.1109/ACCESS.2020.3028121).
21. Trinav Bhattacharyya, Bitanu Chatterjee, **Pawan Kumar Singh**, Jin Hee Yoon, Zong Woo Geem, Ram Sarkar: “*Mayfly in Harmony: A New Hybrid Meta-Heuristic Feature Selection Algorithm*”, In: IEEE Access, Vol. 8, Issue 1, pp. 195929-195945, 2020 (DOI:10.1109/ACCESS.2020.3031718).
22. Arijit Dey, Soham Chattopadhyay, **Pawan Kumar Singh**, Ali Ahmadian, Massimiliano Ferrara, Ram Sarkar: “*A Hybrid Meta-heuristic Feature Selection Method Using Golden Ratio and Equilibrium Optimization Algorithms for Speech Emotion Recognition*”, In: IEEE Access, Vol. 8, Issue 1, pp. 200953-200970, 2020 (DOI:10.1109/ACCESS.2020.3035531).
23. Riktim Mondal, Debadyuti Mukherjee, **Pawan Kumar Singh**, Vikrant Bhateja, Ram Sarkar: “*A New Framework for Smartphone Sensor based Human Activity Recognition using Graph Neural Network*”, In: IEEE Sensors (Special Issue: Sensors in Machine Vision of Automated Systems), Vol. 21, Issue 10, pp. 11461-11468, 2021. (DOI:http://dx.doi.org/10.1109/JSEN.2020.3015726)
24. Avigyan Das, PritamSil, **Pawan Kumar Singh**, Vikrant Bhateja, Ram Sarkar: “*MMHAR-EnsemNet: A Multi-modal Human Activity Recognition Model*”, In: IEEE Sensors (Special Issue: Sensors in Machine Vision of Automated Systems), Vol. 21, Issue 10, pp. 11569-11576, 2021. (DOI:http://dx.doi.org/10.1109/JSEN.2020.3034614)

## Annual Report 2020-2021

25. Neelotpal Chakraborty, Agneet Chatterjee, **Pawan Kumar Singh**, Ayatullah Faruk Mollah, Ram Sarkar: “*Application of daisy descriptor for language identification in the wild*”, In: Multimedia Tools and Applications, Springer Publishers, Issue 80, No. 1, pp. 323-344, 2021 (DOI: <https://doi.org/10.1007/s11042-020-09728-2>)
26. Ritam Guha, Ali Hussain Khan, **Pawan Kumar Singh**, Ram Sarkar, Debotosh Bhattacharjee: “*CGA: a new feature selection model for visual human action recognition*”, In: Neural Computing and Applications, Vol. 33, No. 10, pp. 5267-5286, 2021 (DOI: <https://doi.org/10.1007/s00521-020-05297-5>)
27. Dibyajyoti Dhar, Avishek Garain, **Pawan Kumar Singh**, Ram Sarkar, “*HP DocPres: a method for classifying printed and handwritten texts in doctor’s prescription*”, In: Multimedia Tools and Applications, Springer Publishers, Vol. 80, No. 7, pp. 9779-9812, 2021 (DOI: <https://doi.org/10.1007/s11042-020-10151-w>)
28. Avishek Garain, **Pawan Kumar Singh**, Ram Sarkar: “*FuzzyGCP: A deep learning architecture for automatic spoken language identification from speech signals*”, In: Expert Systems With Applications, Elsevier, Vol. 168, 114416, April 2021. (DOI: <https://doi.org/10.1016/j.eswa.2020.114416>)
29. Ritam Guha, Manosij Ghosh, **Pawan Kumar Singh**, Ram Sarkar, Mita Nasipuri: “*A Hybrid Swarm and Gravitation-based feature selection algorithm for handwritten Indic script classification problem*”, In: Complex & Intelligent Systems, Springer, Vol. 7, pp. 823-839, 2021. (DOI: <https://doi.org/10.1007/s40747-020-00237-1>)
30. Soham Chattopadhyay, Arijit Dey, **Pawan Kumar Singh**, Zong Woo Geem, Ram Sarkar: “*Covid-19 Detection by Optimizing Deep Residual Features with Improved Clustering-Based Golden Ratio Optimizer*”, In: Diagnostics (Special Issue: Machine Learning and Artificial Intelligence in Diagnostics), MDPI Publishers, 11(2), 315, pp. 1-27, 2021. (DOI: <https://doi.org/10.3390/diagnostics11020315>)
31. Pritam Saha, Debadyuti Mukherjee, **Pawan Kumar Singh**, Ali Ahmadian, Massimiliano Ferrara, Ram Sarkar: “*GraphCovidNet: A graph neural network based model for detecting COVID-19 from CT scans and X-rays of chest*”, In: Scientific Reports, 11:8304, pp. 1-16, 2021. (DOI: <https://doi.org/10.1038/s41598-021-87523-1>)
32. Chandra Das, Shilpi Bose, Sourav Dutta, Kuntal Ghosh and Samiran Chattopadhyay, New Hybrid Gene Selection-Sample Classification Method in Microarray Data, Handbook of Research on Engineering Innovations and Technology Management in Organizations, IGI Global, pp. 166 - 179, April 2020 (DOI: 10.4018/978-1-7998-2772-6.ch009)
33. Raja Karmakar, Samiran Chattopadhyay, Sandip Chakraborty, Novel AP association and fair channel access in high throughput WLAN for energy efficiency, Ad Hoc Networks, Volume 103, 1 June 2020, 102156, <https://doi.org/10.1016/j.adhoc.2020.102156>
34. Pragma Kar, Samiran Chattopadhyay, Sandip Chakraborty, Gestatten: Estimation of User's Attention in Mobile MOOCs From Eye Gaze and Gaze Gesture Tracking, Proceedings of the ACM on Human-Computer Interaction Volume 4 Issue EICS June 2020 Article No.: 72pp 1–32 <https://doi.org/10.1145/3394974>
35. Soumya Banerjee, Sandip Roy, Vanga Odelu, Ashok Kumar Das, Samiran Chattopadhyay, Joel J. P. C. Rodrigues, Youngho Park, Multi-Authority CP-ABE-Based user access control scheme with constant-size key and ciphertext for IoT deployment, Journal of Information Security and Applications, Volume 53, 2020, 102503, ISSN 2214-2126, <https://doi.org/10.1016/j.jisa.2020.102503>.
36. Ivanov, Ovidiu, Samiran Chattopadhyay, Soumya Banerjee, Bogdan-Constantin Neagu, Gheorghe Grigoras, and Mihai Gavrilas. 2020. "A Novel Algorithm with Multiple Consumer Demand Response Priorities in Residential Unbalanced LV Electricity Distribution Networks" *Mathematics* 8, no. 8: 1220. <https://doi.org/10.3390/math8081220>



## Annual Report 2020-2021

37. R. Karmakar, S. Chattopadhyay and S. Chakraborty, "A Deep Probabilistic Control Machinery for Auto-Configuration of WiFi Link Parameters," in *IEEE Transactions on Wireless Communications*, vol. 19, no. 12, pp. 8330-8340, Dec. 2020, doi: 10.1109/TWC.2020.3021597.
38. Raja Karmakar, Samiran Chattopadhyay, Sandip Chakraborty, An online learning approach for auto link-Configuration in IEEE 802.11ac wireless networks, *Computer Networks*, Volume 181, 2020, 107426, ISSN 1389-1286, <https://doi.org/10.1016/j.comnet.2020.107426>.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Munmun Bhattacharya, Sandip Roy, Soumya Banerjee, and Samiran Chattopadhyay. "Cryptanalysis of a Centralized Location-Sharing Scheme for Mobile Online Social Networks." In *Advanced Computing and Systems for Security*, pp. 17-30. Springer, Singapore, 2021, ISSN: 2194-5357.
2. Sujit Kumar Das and B. C. Dhara, "Extended LBP based Secret Image Sharing with Steganography", In: Senjyu T., Mahalle P.N., Perumal T., Joshi A. (eds) *Information and Communication Technology for Intelligent Systems. ICTIS 2020. Smart Innovation, Systems and Technologies*, vol 195. Springer, Singapore. [https://doi.org/10.1007/978-981-15-7078-0\\_12](https://doi.org/10.1007/978-981-15-7078-0_12) Online ISBN 978-981-15-7078-0
3. Mukul Biswas, Sujit Kumar Das, Bibhas Chandra Dhara, "An Image Encryption method using Chaos and DNA Encoding", In: Dutta P., Mandal J.K., Mukhopadhyay S. (eds) *Computational Intelligence in Communications and Business Analytics. CICBA 2021. Communications in Computer and Information Science*, vol 1406, pp. 42 -56, Springer, Cham. Online ISBN 978-3-030-75529-4, [https://doi.org/10.1007/978-3-030-75529-4\\_4](https://doi.org/10.1007/978-3-030-75529-4_4)
4. Sumit Mukherjee, Ranjit Ghoshal, Pinaki Pal, Kaustuv Nandy and Bibhas Chandra Dhara, "Retinal Vessel Identification using 2-level Synthesis and Noise Correction Method", In: Mandal, Jyotsna Kumar, Buyya, Rajkumar, De, Debashis (Eds.) *International Conference on Advanced Computing and Applications (ICACA'21). Advances in Intelligent Systems and Computing*, vol 1406, Springer Singapore. Online ISBN 978-981-16-5207-3, <https://doi.org/10.1007/978-981-16-5207-3>
5. Sumit Mukherjee, Ranjit Ghoshal and Bibhas Chandra Dhara, "Tiny Vessels Exploration in Retinal Image using BFS Influenced Flood Filling" In: Mandal J.K., De D. (eds) *Advanced Techniques for IoT Applications. EAIT 2021. Lecture Notes in Networks and Systems*, vol 292, pp. 48 - 57, Springer, Singapore. Online ISBN 978-981-16-4435-1 [https://doi.org/10.1007/978-981-16-4435-1\\_6](https://doi.org/10.1007/978-981-16-4435-1_6)
6. Aakash Paul, Shyamalendu Kandar, Bibhas Chandra Dhara, "Generation of Pseudorandom Sequence Using Regula-Falsi Method", In: Giri D., Buyya R., Ponnusamy S., De D., Adamatzky A., Abawajy J.H. (eds) *Proceedings of the Sixth International Conference on Mathematics and Computing, Advances in Intelligent Systems and Computing*, vol 1262, pp. 393-405, Springer, Singapore, Online ISBN 978-981-15-8061-1, [https://doi.org/10.1007/978-981-15-8061-1\\_31](https://doi.org/10.1007/978-981-15-8061-1_31)
7. Saikat Chakraborty, Riktim Mondal, **Pawan Kumar Singh**, Ram Sarkar, Mita Nasipuri: "*Genetic Dropout: An Application to Handwritten Indic Script Classification*". In: Mandal J.K., De D. (eds) *Advanced Techniques for IoT Applications. EAIT 2021. Lecture Notes in Networks and Systems*, vol 292. Springer, Singapore. [https://doi.org/10.1007/978-981-16-4435-1\\_1](https://doi.org/10.1007/978-981-16-4435-1_1)
8. Arijit Sil, Sruti Gan Chaudhuri. (2021) Formation of Straight Line By Swarm Robots. In: Mandal J.K., Mukherjee I., Bakshi S., Chatterji S., Sa P.K. (eds) *Computational Intelligence and Machine Learning. Advances in Intelligent Systems and Computing*, vol 1276. Springer, Singapore. [https://doi.org/10.1007/978-981-15-8610-1\\_11](https://doi.org/10.1007/978-981-15-8610-1_11)
9. Moumita Ghosh, Anirban Roy, **Kartick Chandra Mondal**, "Determining Dark Diversity of Different Faunal Groups in Indian Estuarine Ecosystem: A New Approach with Computational Biodiversity." In: J. K. Mandal and D. De (eds) *Advanced Techniques for IoT Applications. EAIT 2021. Lecture Notes in Networks and Systems*, vol 292, Pages: 147-158, Springer,

## Annual Report 2020-2021

Singapore. [https://doi.org/10.1007/978-981-16-4435-1\\_16](https://doi.org/10.1007/978-981-16-4435-1_16), Print ISBN: 978-981-16-4434-4, Online ISBN: 978-981-16-4435-1 (Conference Proceedings)

10. Neepa Biswas, **Kartick Chandra Mondal**, "Integration of ETL in Cloud using Spark for Streaming Data.", In: J. K. Mandal and D. De (eds) Advanced Techniques for IoT Applications. EAIT 2021. Lecture Notes in Networks and Systems, vol 292, Pages: 172-182, Springer, Singapore. [https://doi.org/10.1007/978-981-16-4435-1\\_18](https://doi.org/10.1007/978-981-16-4435-1_18), Print ISBN: 978-981-16-4434-4, Online ISBN: 978-981-16-4435-1 (Conference Proceedings)
11. Biswadeep Deb Nandy and **Kartick Chandra Mondal**, "Optimization of Coverage Hole Identification in 5G SON Using Data Mining.", In, J. Tavares et al. (eds.), Emerging Technologies in Data Mining and Information Security, Chapter 40, Lecture Notes in Networks and Systems (LNNS), Vol: 164, Pages: 429-437, 2021, [https://doi.org/10.1007/978-981-15-9774-9\\_40](https://doi.org/10.1007/978-981-15-9774-9_40), Print ISBN: 978-981-15-9773-2, Online ISBN: 978-981-15-9774-9 (Conference Proceedings)
12. **Kartick Chandra Mondal**, Tanika Chakraborty, and Somnath Mukhopadhyay, "Empirical Study of Propositionalization Approaches.", In, A. E. Hassanien et al. (eds.), Emerging Technologies in Data Mining and Information Security, Chapter 68, Advances in Intelligent Systems and Computing (AISC), Vol. 1300, Pages: 707-716, [https://doi.org/10.1007/978-981-33-4367-2\\_68](https://doi.org/10.1007/978-981-33-4367-2_68), Print ISBN: 978-981-33-4366-5, Online ISBN: 978-981-33-4367-2 (Conference Proceedings)
13. **Kartick Chandra Mondal**, Neepa Biswas, and Swati Saha, "Role of Machine Learning in ETL Automation.", In Proceedings of 21st International Conference on Distributed Computing and Networking (ICDCN 2020), Article No. - 57, Pages: 1-6, January 4-7, 2020, Kolkata, India. ACM, New York, NY, USA, <https://doi.org/10.1145/3369740.3372778>, ISBN: 9781450377515, **(CORE Ranking - B)** (Conference Proceedings)
14. Saif S., Biswas S., Chattopadhyay S. (2020) Intelligent, Secure Big Health Data Management Using Deep Learning and Blockchain Technology: An Overview. In: Dash S., Acharya B., Mittal M., Abraham A., Kelemen A. (eds) Deep Learning Techniques for Biomedical and Health Informatics. Studies in Big Data, vol 68. Springer, Cham. [https://doi.org/10.1007/978-3-030-33966-1\\_10](https://doi.org/10.1007/978-3-030-33966-1_10)

### F. Research Articles Published in Conference Proceedings during the year (Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Munmun Bhattacharya, Sandip Roy, and Samiran Chattopadhyay. "An Efficient Authentication Scheme for Mobile Online Social Networks." 8th International Doctoral Symposium on Applied Computation and Security Systems (ACSS-2021), 9 – 10 April, 2021, Kolkata, India.
2. Moumita Mondal, Sruti Gan Chaudhuri, Punyasha Chatterjee, "Uniform Grid Formation by Asynchronous Fat Robots", Proceedings of International Conference on Innovations in Software Architecture and Computational Systems. Studies in Autonomic, Data-driven and Industrial Computing. Springer, Singapore. pp. 93-107 [https://doi.org/10.1007/978-981-16-4301-9\\_8](https://doi.org/10.1007/978-981-16-4301-9_8)
3. Moumita Ghosh, Anirban Roy and **Kartick Chandra Mondal**, "FCA based Constant and Coherent Signed Bicliques Identification and its Application in Biodiversity Study", AISC Springer Series, Proceedings of International Conference on Advanced Computing Applications - ICACA 2021
4. Moumita Ghosh, **Kartick Chandra Mondal**, "Computational Biodiversity", AISC Springer Series, Proceedings of International Conference on Advanced Computing Applications - ICACA 2021, Springer, 2020, pp. 1-6.
5. Moumita Ghosh, Anirban Roy and **Kartick Chandra Mondal**, "Analysis of Indian Estuarine Data of Flora & Fauna", 2nd International Conference on Data Science and Applications (ICDSA 2021)
6. S. Bose, C. Das, A. Banerjee, M. Chattopadhyay and S. Chattopadhyay, "An Ensemble Filtering and Supervised Clustering based Informative Gene Selection Algorithm in Microarray Gene Expression

## Annual Report 2020-2021

- Data," *2020 4th International Conference on Computational Intelligence and Networks (CINE)*, 2020, pp. 1-7, doi: 10.1109/CINE48825.2020.234391.
7. S. Banerjee, V. Odelu and S. Chattopadhyay, "A brief overview of User Authentication in Internet of Things architecture," *2020 4th International Conference on Computational Intelligence and Networks (CINE)*, 2020, pp. 1-6, doi: 10.1109/CINE48825.2020.234395.
  8. R. Karmakar, S. Chattopadhyay and S. Chakraborty, "SmartBond: A Deep Probabilistic Machinery for Smart Channel Bonding in IEEE 802.11ac," *IEEE INFOCOM 2020 - IEEE Conference on Computer Communications (CORE Ranking A\*)*, 2020, pp. 2599-2608, doi: 10.1109/INFOCOM41043.2020.9155436
  9. Soumya Banerjee, Debarshi Kumar Sanyal, Samiran Chattopadhyay, Plaban Kumar Bhowmick, ParthaPratim Das, Segmenting Scientific Abstracts into Discourse Categories: A Deep Learning-Based Approach for Sparse Labeled Data, JCDL '20: Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (QUALIS Rank: A), August 2020 Pages 429–432 <https://doi.org/10.1145/3383583.3398598>
  10. Kaushal Jhavar, Debarshi Kumar Sanyal, Samiran Chattopadhyay, Plaban Kumar Bhowmick, Partha Pratim Das, Author Name Disambiguation in PubMed using Ensemble-Based Classification Algorithms, JCDL '20: Proceedings of the ACM/IEEE Joint Conference on Digital Libraries, (QUALIS RANK: A) August 2020 Pages 469–470 <https://doi.org/10.1145/3383583.3398568>
  11. R. Mukhopadhyay, S. Neogy and S. Chattopadhyay, "Dynamic Relay Selection using a Greedy Cluster Strategy," *2020 IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)*, 2020, pp. 1-4, doi: 10.1109/ANTS50601.2020.9342757.

### G. Patents Granted/ Published/ Filed during the year:

Name of the Inventors	Title of the Patent	National/ International	Status Granted/Published/Filed	Patent Number	Date of Publication
Dr. Kartick Chandra Mondal; Dr. Somnath Mukhopadhyay; Dr. Sunita Sarkar; Prof. Samiran Chattopadhyay; Ms. Moumita Ghosh; Ms. Anindita Sarkar Mondal; Ms. Rohmatul Fajriyah	Suffix Forest: A novel in-memory data structure for analyzing time-series data	International	Filed	2021107061	File date: 24/08/2021

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### C. Seminar/Workshop/Conference/Symposium Organized:

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
--	---	--	-------	------

### Annual Report 2020-2021

One day Webinar on "Industry Talk on Research, Embedded Systems and Robotics"	Tohida Rehman		Department of Information Technology, Jadavpur University	18th September, 2020
2 <sup>nd</sup> International Conference on Advance Computing and Application	Kartick Chandra Mondal (Organizing Committee Member)		CSI, Kolkata	March 27-28, 2021

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Bibhas Chandra Dhara</b>	Invited Lecture	AICTE SPONSORED 6-DAYS Online Short Term Training Programme on Machine Learning, Pattern Recognition and their Applications (Phase I)	Department of Information Technology, St. Thomas' College of Engineering & Technology, Kolkata	November 02 -07 2020
<b>Bibhas Chandra Dhara</b>	Invited Lecture	AICTE SPONSORED 6-DAYS Online Short Term Training Programme on Machine Learning, Pattern Recognition and their Applications (Phase II)	Department of Information Technology, St. Thomas' College of Engineering & Technology, Kolkata	November 23 to 28 2020
<b>Bibhas Chandra Dhara</b>	Invited Lecture	AICTE SPONSORED 6-DAYS Online Short Term Training Programme on Machine Learning, Pattern Recognition and their Applications (Phase III)	Department of Information Technology, St. Thomas' College of Engineering & Technology, Kolkata	14 to 19 December, 2020
<b>Bibhas Chandra Dhara</b>	Invited Lecture	In a short term course on "Information Security: Approaches in Application to Physical Layer"	Department of Information Technology, IEST, Shibpur	11 to 15 January, 2021
<b>Parama Bhaumik</b>	Invited Lecture	In a one week online Faculty Development Programme on "Multidisciplinary Trends in Science and Technology for	Department of Basic Science and Humanities of Narula	22 to 27 June, 2020

**Annual Report 2020-2021**

		Sustainable Development- A Post COVID19 Perspective"	Institute of Technology	
--	--	--	----------------------------	--

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
<b>Munmun Bhattacharya</b>	An Efficient Authentication Scheme for Mobile Online Social Networks	ACSS 2021	Kolkata, India	9 – 10 April, 2021

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
<b>Somenath Dhibar</b>	Professional Development Programme" for TEQIP Institutions	IIM Kozhikode	March 01-06, 2021
<b>Somenath Dhibar</b>	AICTE Training And Learning (ATAL) Academy Online FDP on "Data Science and Analytics"	IIT Nagpur	November 30-December 04, 2020
<b>Somenath Dhibar</b>	AICTE Training And Learning (ATAL) Academy Online FDP on "Electrical & Computer Engineering"	University Institute of Information Technology	November 23-27, 2020
<b>Pawan Kumar Singh</b>	One week Online FDP on "Image Authentication, WSN &IoT"	JIS College of Engineering in association with CSI Kolkata Chapter	22-26 June, 2020
<b>Pawan Kumar Singh</b>	One week Online FDP on "Image Authentication, WSN &IoT"	JIS College of Engineering in association with CSI Kolkata Chapter	22-26 June, 2020
<b>Pawan Kumar Singh</b>	5-Day Online Faculty Development Program on "Emerging Technical Aspects of Current Learning Needs for Faculty"	Amity School of Engineering and Technology, Amity University, Kolkata	22 – 25 June and 27 June, 2020
<b>Pawan Kumar Singh</b>	One Week online Workshop on "Blended E-Learning"	JNTUK University College of Engineering, Vizianagaram in association with CSI, Region V	6 -10 July, 2020
<b>Pawan Kumar Singh</b>	One Week Online STTP on "Supply Chain Management: Challenges and Strategies"	Dr. B. R. Ambedkar National Institute of Technology, Jalandhar under TEQIP-III	13 -17 July, 2020

**Annual Report 2020-2021**

<b>Pawan Kumar Singh</b>	One Week OnlineFDP on “Ethical Hacking & Cyber Security”	Mahatma Gandhi Institute of Technology	27 -31 July, 2020.
<b>Pawan Kumar Singh</b>	15-Day Online Workshop on “Journey from Research to Publication”	Chitkara University, Punjab	13- 27 July, 2020
<b>Pawan Kumar Singh</b>	One Week Workshop (Webinar) on “Engineering Applications of Optimization Techniques 2020 (EAOT 2020)”	National Institute of Technology, Silchar	5 -9 September, 2020
<b>Pawan Kumar Singh</b>	One week Online FDP on “Artificial Intelligence using Python”	Government College of Engineering & Ceramic Technology, Kolkata	14 – 19 September, 2020
<b>Pawan Kumar Singh</b>	AICTE Training And Learning (ATAL) Academy Online FDP on “MEDICAL IMAGE PROCESSING AND DEEP LEARNING TECHNOLOGIES”	Panimalar Institute of Technology	21 -25 September, 2020
<b>Pawan Kumar Singh</b>	6-Day AICTE Sponsored Short Term Training Programme on “Machine Learning, Pattern Recognition and their Applications”	St. Thomas’ College of Engineering and Technology	2 – 7 November, 2020
<b>Pawan Kumar Singh</b>	One Week Online FDP on “Implementation of National Education Policy 2020: Role of Faculty members of HEIs”	Teaching Learning Centre, Central University of Rajasthan	4 -8 November, 2020
<b>Pawan Kumar Singh</b>	10 Days Online FDP on “Teaching Learning and Assessment”	Teaching Learning Centre, Central University of Rajasthan	23 November -3 December, 2020
<b>Pawan Kumar Singh</b>	10 Days Online FDP on “Indian Ethos in Management”	Teaching Learning Centre, Central University of Rajasthan	4 January – 14 January,2021
<b>Pawan Kumar Singh</b>	6 <sup>th</sup> International Conference on Emerging Applications of Information Technology (EAIT 2020)	Computer Society of India (CSI) Kolkata Chapter and University of Kalyani	25-27 February, 2021
<b>Parama Bhaumik</b>	One Day Faculty Development Program on Industry Talk on Research, Embedded Systems and Robotics	Department of Information Technology, Jadavpur University	18- September, 2020

### Annual Report 2020-2021

<b>Palash Kundu</b>	AICTE Training And Learning (ATAL) Academy Online FDP on "Internet of Things (IoT)"	Kongunadu College of Engineering and Technology	25-29 March, 2021
<b>Palash Kundu</b>	AICTE Training And Learning (ATAL) Academy Online FDP on "Internet of Things (IoT)"	LBS College of Engineering, Kasaragod	11-15 March, 2021
<b>Palash Kundu</b>	AICTE Training And Learning (ATAL) Academy Online FDP on "Electrical & Computer Engineering"	MAHENDRA ENGINEERING COLLEGE AUTONOMOUS	22-26 February, 2021
<b>Palash Kundu</b>	One Week Online Workshop on "ML in vision and IoT"	Dept. of CSE, MNNIT	22-26 January, 2021
<b>Palash Kundu</b>	One-week online Faculty Development Program on "Information Security: Issues and Challenges (ISIC-2020)"	Dept. of CSE, MNNIT	17-21 November, 2020
<b>Palash Kundu</b>	'4'- Day Workshop on "Optimum Approaches Towards IoT System Design"	SDIET, Faridabad	22-25 June, 2020
<b>Palash Kundu</b>	One Week Online FDP on "Implementation of National Education Policy 2020: Role of Faculty members of HEIs"	Teaching Learning Centre, Central University of Rajasthan	4 -8 November, 2020
<b>Palash Kundu</b>	6-Day AICTE Sponsored Short Term Training Programme on "Machine Learning, Pattern Recognition and their Applications"	St. Thomas' College of Engineering and Technology	23 – 28 November, 2020
<b>Palash Kundu</b>	One week AICTE Sponsored STTP on "Challenges and Applicationson Cyber-Physical Systems"	Dept. of CSE, GIET University	21-28 December, 2020
<b>Palash Kundu</b>	AICTE Sponsored STTP Series II on "Machine Learning Applications to Internet of Things (IoT)"	Velammal College of Engineering and Technology, Madurai	1-6 February, 2021
<b>Tohida Rehman</b>	Cyber Security and Modern Cryptography	Dept. of Mathematics, IIT, Kharagpur	9-13 November, 2020
<b>Tohida Rehman</b>	International Online Faculty Enrichment Programme on "Tips & Tricks for Publishing in International Scientific Journals"	Department of Zoology, Chemistry, Botany & Physics, Surendranath College	20 June, 2020.

### Annual Report 2020-2021

<b>Tohida Rehman</b>	Covid-19: Through The Eyes of Young Researchers	Department of Zoology, Chemistry, Botany & Physics, Surendranath College	3-4 July, 2020
<b>Kartick Chandra Mondal</b>	ATAL FDP on Data Science and It's Application	Department of Computer Science, Central University of Tamil Nadu, Thiruvavur, India (Online)	October 05 – 09, 2020
<b>Kartick Chandra Mondal</b>	ATAL FDP on Data Science with Statistical Methods using R Programming	Department of Mathematics, NIT-Raipur, Chhatisgarh, India (Online)	September 21-25, 2020
<b>Kartick Chandra Mondal</b>	Industry Talk on Research, Embedded Systems and Robotics	Department of Information Technology, Jadavpur University, Kolkata	18 September, 2020
<b>Kartick Chandra Mondal</b>	Big Data Analytics	Department of Information Technology, MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, West Bengal. In association with the IUST, Jammu & Kashmir Funded By-TEQIP-III	13-18 September, 2020
<b>Kartick Chandra Mondal</b>	Computer Vision and Multimedia Computing	Department of Information Technology, Jadavpur University, Kolkata	February 10-17, 2020

**6. Major Achievements of the Department during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Professor Samiran Chattopadhyaya</b>	Shiksha Ratna Samman 2020	Government of West Bengal	Kolkata

**C. Awards received by Research Scholars/students:**



### Annual Report 2020-2021

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Moumita Ghosh	Best Paper Award	ICDSA organized by Jadavpur University	Kolkata

**D. Any Other Major Achievements:**

- Professor Samiran Chattopadhyaya received “**Shiksha Ratna Samman 2020**” from The Education Department, The Government of West Bengal.

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
1	Dept. of Information Technology	Ph.D.(Brain and Artificial Intelligence)	IISc Bangalore
1	Dept. of Information Technology	Ph.D. (Computer Science )	University of California
1	Dept. of Information Technology	M.Tech	IISc Bangalore
1	Dept. of Information Technology	M.S. (CSE)	IIT Bombay
1	Dept. of Information Technology	MBA	IIM Shillong
1	Dept. of Information Technology	Ph.D. (Computer Science)	Penn State University

**B. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
GATE	5
CAT	1
GRE	1
TOFEL	3

## Annual Report 2020-2021

### INSTRUMENTATION & ELECTRONICS ENGINEERING

[SALT LAKE CAMPUS]

Phone: 033-2335-2587

H.O.D : Dr. Sankar Narayan Patra

E-mail: hodiee@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

To grow as a diverse and socially responsible community promoting high quality learning in Instrumentation and Electronics Engineering

##### B. Mission:

- To inculcate in its graduates the best of global learning and technology in the multidisciplinary aspects of Instrumentation and Electronics Engineering with a thrust on Basic Sciences and Humanities.
- To inspire its graduates to achieve excellence in education and research in order to extend the benefits of improved technology to both the rural and urban populations.
- To create leaders capable of self-reliant industrial development that enables a more humane and just world.
- To prepare employable graduates capable of continuous learning, team work and exhibiting ethical professionalism

#### 2. Academic Activities:

##### A. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BE	4	1 <sup>st</sup> year	55
		2 <sup>nd</sup> year ...	59
ME	2	1 <sup>st</sup> year	8
		2 <sup>nd</sup> yr	8

#### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
9	2	3	

#### 4. Research Activities:

##### A. Areas of Research Activities:

(Broad Areas)

- Gas Sensors and Thermal Sensors Fabrication and characterization.
- NIR and Raman spectroscopy, machine olfaction, and electronic tongue.

## Annual Report 2020-2021

- Process Control, Intelligent Control and Bioinformatics, Neural Information Processing, Computational Intelligence for Decision Making Systems.
- Control Systems, Signal Processing, Biomedical Instrumentation, Filtering and estimation.
- System control and estimation with applications in nuclear power plants as well as defense research areas, design of sensing systems and controllers for submarine design and control as well as practical fire detection and controlsystem, biomedical sensor-based data acquisition systems.
- Electronic nose using QCM sensors and tongue systems for quality evaluation of tea and other volatiles with MIP technology.
- Hardware efficient digital filter design, early detection of neurological disorders and clustering-routing protocols of wireless sensor networks.
- Time Series Analysis, Nature Inspired Algorithm, Astrophysical Signal Analysis, Biomedical Data, and Image Processing, various areas in Railway Engineering.
- Intelligent Measurement Systems, actuators and inertial sensors for airborne systems.
- Stochastic Computing, Image processing, VLSI.

### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
DST FIST 2017	Departmental	Head, IEE	DST	5 yrs

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
2	18

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):

1. Subhabrata Roy and Abhijit Chandra, "A Survey of FIR Filter Design Techniques: Low-complexity, Narrow Transition-band and Variable Bandwidth", Integration, the VLSI Journal (Elsevier), vol. 77, pp. 193-204, March 2021. (Impact Factor 1.211)
2. Dipak Samanta, Jayanta Kumar Bag, Chanchal Kumar De and Abhijit Chandra, "A Smart Spectrum Utilization Approach using Multiantenna-based Cognitive Relays in Cognitive Radio Network", International Journal of Communication Systems (Wiley), vol. 34, no. 1, January 2021. (Impact Factor 2.047)
3. Soumyak Chandra, Abhijit Chandra and Rajarshi Gupta, "An Efficient Data Routing Scheme for Multi-patient Monitoring in a Biomedical Sensor Network through Energy Equalization Strategy", Wireless Networks (Springer), vol. 27, pp. 635-648, 2021. (Impact Factor 2.602)
4. Subhabrata Roy and Abhijit Chandra, "A Triangular Common Subexpression Elimination Algorithm with Reduced Logic Operators in FIR Filter", IEEE Transactions on Circuits and Systems-II: Express Briefs, vol. 67, no. 12, pp. 3527-3531, December 2020. (Impact Factor 3.292)
5. Subhabrata Roy and Abhijit Chandra, "On the Design of Narrow Transition Band Variable Bandwidth Digital Filter", IET Circuits, Devices and Systems, vol. 14, no. 6, pp. 750-757, September 2020. (Impact Factor 1.29)
6. Avik Moulik, Shounak Lahiry and Abhijit Chandra, "Design of Minimum-Phase FIR Filter: An Evolutionary Approach", Proceedings of the National Academy of Sciences, India Section A: Physical Sciences (Springer), vol. 90, no. 2, pp. 359-369, April-June 2020. (Impact Factor 1.544)

## Annual Report 2020-2021

7. Abhijit Chandra and Monika Parvin, "Quasi-dynamic Load Balanced Clustering Protocol for Energy Efficient Wireless Sensor Networks", *Wireless Personal Communications (Springer)*, vol. 111, no. 3, pp. 1589-1605, April 2020. (Impact Factor 1.671)
8. Soumya Roy, Subhash Chandra Panja, and Sankar Narayan Patra. "An embedded system to measure ground-based solar irradiance signal" *Measurement* 173, 108598., MARCH, 2021
9. Soumya Roy, Amrita Prasad, Subhash Chandra Panja, and Sankar Narayan Patra. "Temporal variation of solar flare index during solar cycles 21– 24." *Research in Astronomy and Astrophysics* 21, no. 3 , 53 FEBRUARY, 2021
10. Soumya Roy, Amrita Prasad, Koushik Ghosh, Subhash Chandra Panja, and Sankar Narayan Patra. "Computation of Composite Mg II Core-to-Wing Ratio for Solar Cycle 22 and 23". *Geomagnetism and Aeronomy* 61, no. 1, 128-137.,MARCH,2021
11. Soumya Roy, Amrita Prasad, Koushik Ghosh, Subhash Chandra Panja, and Sankar Narayan Patra. "Investigation of the Hemispheric Asymmetry in Solar Flare Index During Solar Cycle 21–24 from the Kandilli Observatory". *Solar Physics* 295, no. 7, 1-22.JULY,2020
12. Soumya Roy, Amrita Prasad, Koushik Ghosh, Subhash Chandra Panja, and Sankar Narayan Patra. "Chaos and Periodicities in Solar Flare Index from Kandilli Observatory during 1976–2014." *Research in Astronomy and Astrophysics* 20, no. 7 ,110. AUGUST, 2020
13. Amrita Prasad, Soumya Roy, Koushik Ghosh, Subhash Chandra Panja, and Sankar Narayan Patra. "Investigation of Hemispherical Variations of Soft X-Ray Solar Flares during Solar Cycles 21 to 24." *Solar System Research* 55, no. 2 , 169-182, APRIL, ,2021
14. Fazle Kibria, Wahida Rahman, and Sankar Narayan Patra. "Detection of high sensitive acoustic region for sensible applications of electrospinning based PVDF-TrFE nanofiber sensor." *Nano Express* 1, no. 2, 020027.AUGUST, 2020
15. Fazle Kibria, Wahida Rahman, and Sankar Narayan Patra. "Electrospinning-based high-sensitive PVDF-TrFE nanofibre sensor with sensitivity dependence on pore diameter". *Current Science* (00113891) 119, no. 5, NOVEMBER, 2020.
16. Shreya Nag, Susmita Pradhan, Hemanta Naskar, Runu Banerjee Roy, Bipan Tudu, Panchanan Pramanik, Rajib Bandyopadhyay, "A simple nano cerium oxide modified graphite electrode for electrochemical detection of formaldehyde in mushroom", *IEEE Sensors Journal*, vol. 21, no.10, pp.12019-12026, March, 2021.
17. Debangana Das, Don Biswas, Ajanto Kumar Hazarika, Santanu Sabhapondit, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, "CuO nanoparticles decorated MIP-based electrode for sensitive determination of gallic acid in green tea," *IEEE Sensors Journal*, vol. 21, no.5, pp.5687-5694, March, 2021.
18. Mahuya Bhattacharyya Banerjee, Samrat Roy Chowdhury, Runu Banerjee Roy, Bipan Tudu, Mahua Ghosh, Panchanan Pramanik, Rajib Bandyopadhyay, "Development of a low-cost portable gas sensing system based on molecularly imprinted quartz crystal microbalance sensor for detection of eugenol in clove oil", *IEEE Transaction on Instrumentation and Measurement*, vol. 70, 9181614, August, 2020.
19. Debangana Das, Trisita Nandy Chatterjee, Runu Banerjee Roy, Bipan Tudu, Ajanto Kr Hazarika, Santanu Sabhapondit, Rajib Bandyopadhyay, "Titanium oxide nanocubes embedded molecularly imprinted polymer based electrode for selective detection of caffeine in green tea". *IEEE Sensors Journal*, vol. 20, no.12, pp. 6240-6247,June, 2020.
20. Barnali Ghatak, Sanjay Banerjee, SB Ali, N Das, B Tudu, P Pramanik, S Mukherji, "Development of a low-cost portable aroma sensing system for identifying artificially ripened mango", *Sensors and Actuators A: Physical*, 331, 2021, 112964.
21. D Kirsanov, S Mukherjee, S Pal, K Ghosh, N Bhattacharyya, R Bandyopadhyay, Martin Jendrlin, Aleksandar Radu, Vladimir Zholobenko, Monireh Dehabadi, Andrey Legin, "A Pencil-Drawn Electronic Tongue for Environmental Applications", *Sensors* 21 (13), 2021, 4471.
22. Dilip Sing, Subhadip Banerjee, Shibu Narayan Jana, Ranajoy Mallik, Sudarshana Ghosh Dastidar, Kalyan Majumdar, Amitabha Bandyopadhyay, Rajib Bandyopadhyay, Pulok K Mukherjee, "Estimation of Andrographolides and Gradation of *Andrographis paniculata* Leaves Using Near Infrared Spectroscopy Together With Support Vector Machine", *Frontiers in Pharmacology*, 2021; 12: 629833.

## Annual Report 2020-2021

23. Hemanta Naskar, Susmita Pradhan, Barnali Ghatak, Sudip Biswas, Bipan Tudu, Rajib Bandyopadhyay, "Electrochemical Detection of Capsaicin in Chili Pepper Using Molecular Imprinted Poly  $\beta$ -Cyclodextrin Embedded Graphite (MIP- $\beta$ -CD@G) Electrode", *IEEE Sensors Journal*, 2021.
24. One shot evaluation of NPK in soils by "electronic tongue", Maria Khaydukova, Dmitry Kirsanov, Subrata Sarkar, Subhankar Mukherjee, Julia Ashina, Nabarun Bhattacharyya, Somdeb Chanda, Rajib Bandyopadhyay, Andrey Legin, *Computers and Electronics in Agriculture*, vol. 186, pp. 106208, 2021.
25. Barnali Ghatak, Sanjoy Banerjee, Sk Babar Ali, Rajib Bandyopadhyay, Nityananda Das, Dipankar Mandal, Bipan Tudu, "Design of a self-powered triboelectric face mask", *Nano Energy*, vol 79, 2021.
26. Nilava Debabhuti, Swarnali Neogi, Sumani Mukherjee, Abhishek Dhar, Prolay Sharma, Rohit L Vekariya, Mousumi Poddar Sarkar, Bipan Tudu, Nabarun Bhattacharyya, Rajib Bandyopadhyay, Mohd Muddassir, "Development of QCM sensor to detect  $\alpha$ -terpinyl acetate in cardamom", *Sensors and Actuators A*, vol 319, pp. 112521, 2021
27. Susmita Pradhan, Mahuya Bhattacharyya Banerjee, Sudip Biswas, Nor Aliya Hamizi, Dipak K Das, Radhaballabh Bhar, Rajib Bandyopadhyay, Panchanan Pramanik, "An efficient simultaneous electrochemical detection of nanomolar epinephrine and uric acid using low temperature synthesized nanosized copper telluride", *Electroanalysis*, vol. 33, no. 2, pp. 383-392, 2021
28. Barnali Ghatak, Susmita Pradhan, Hemanta Naskar, Bipan Tudu, Rajib Bandyopadhyay, Panchanan Pramanik, "Development of a graphite based nanostructured nickel telluride (n-NiTe/GP) electrode for electrochemical detection of antiplatelet agent Clopidogrel", *IEEE Sensors Journal*, vol 21, no. 6, pp. 7226 - 7232, 2021
29. Barnali Ghatak, Hemanta Naskar, Susmita Pradhan, Bipan Tudu, Soumyo Mukherji, Rajib Bandyopadhyay, Panchanan Pramanik, "Electrochemical Detection of Important Biomarker for Artificial Ripening of Mango by Polymethacrylic Acid Imprinted Polymer Sensor", *IEEE Sensors Journal*, vol 21, no. 5, pp. 5695 - 5702, 2021
30. Trisita Nandy Chatterjee, Rajib Bandyopadhyay, "A molecularly imprinted polymer-based technology for rapid testing of COVID-19", *Transactions of the Indian National Academy of Engineering*, vol. 5, no. 2, pp. 225-228, 2020.
31. Susmita Pradhan, Mahuya Bhattacharyya Banerjee, Sudip Biswas, Nor Aliya Hamizi, Dipak K Das, Radhaballabh Bhar, Rajib Bandyopadhyay, Panchanan Pramanik, "An efficient simultaneous electrochemical detection of nanomolar epinephrine and uric acid using low temperature synthesized nanosized copper telluride", *Electroanalysis*, vol. 33, no. 2, pp. 383-392, 2020.
32. Sudip Biswas, Hemanta Naskar, Susmita Pradhan, Yang Wang, Rajib Bandyopadhyay, Panchanan Pramanik, "Simultaneous voltammetric determination of Adrenaline and Tyrosine in real samples by neodymium oxide nanoparticles grafted graphene", *Talanta*, vol. 206, 120176, 2020.
33. Sudip Biswas, Hemanta Naskar, Susmita Pradhan, Yuling Chen, Yang Wang, Rajib Bandyopadhyay, Panchanan Pramanik, "Sm<sub>2</sub>O<sub>3</sub> Nanorod modified Graphite Paste Electrode for Trace Level Voltammetric Determination of Acetaminophen and Ciprofloxacin", *New Journal of Chemistry*, 44, pp. 1921-1930, 2020.
34. Mitra S, Santosh KC, Naskar MK. Niblack binarization on document images: Area efficient, low cost, and noise tolerant stochastic architecture. *International Journal of Pattern Recognition and Artificial Intelligence*. 2021 Mar 30;35(04):2154013
35. U. M. Nath, C. Dey, R. K. Mudi, "Designing of IMC-PID controller for higher-order process based on model reduction method and fractional coefficient filter with real-time verification", *Chemical Product and Process Modeling*, Vol. 15, no.3, 2020, <https://doi.org/10.1515/cppm-2019-0089>
36. U. M. Nath, C. Dey, R. K. Mudi, "Fuzzy rule-based auto-tuned internal model controller for real-time experimentation on temperature and level processes", *Int. Journal of Automation and Control*, Vol. 14, no. 2, pp. 239-256, 2020. <https://doi.org/10.1504/ijaac.2020.105521>
37. U. M. Nath, C. Dey, R. K. Mudi, "A switching IMC-PID controller design for lag dominating processes with real-time implementation on a level control system", *Mechatronic Systems and Control*, Vol. 48, no. 3, pp. 171-182, 2020. <http://dx.doi.org/10.2316/J.2020.201-0064>.
38. R.R. De(Maity), R.K. Mudi, C. Dey, "Comparative Performance Study of Optimal Interval Type-2 Fuzzy PID Controllers with Practical System", *Int. Journal of Computer Sciences and Engineering*, Vol. 8, no. 3, pp. 1-6, 2020. <https://doi.org/10.26438/ijcse/v8i3.16>

## Annual Report 2020-2021

39. R.R. De(Maity), R.K. Mudi, C. Dey, "Nature-inspired and hybrid optimization algorithms on interval Type-2 fuzzy controller for servo processes: a comparative performance study", SN Applied Sciences, Vol. 2, no. 7, pp. 1-16, 2020. DOI: <https://doi.org/10.1007/s42452-020-3024-5>.
40. U. M. Nath, C. Dey, and R. K. Mudi, "Stabilized IMC-PI controller designing for IPDT processes based on gain and phase margin criteria", IFAC-PapersOnLine, Vol. 53, no. 1, pp. 129-134, 2020. <https://doi.org/10.1016/j.ifacol.2020.06.022>.
41. U. M. Nath, C. Dey, and R. K. Mudi, "Desired characteristics equation based PID controller tuning for lag-dominating processes with real-time realization on level control system," IEEE Control Systems Letters, vol. 5, no. 4, pp. 1255-1260, 2021. <https://doi.org/10.1109/LCSYS.2020.3030173>.
42. U. M. Nath, C. Dey, and R. K. Mudi, "Review on IMC based PID controller design approach with experimental validations", IETE Journal of Research, pp. 1-19, 2021, <https://doi.org/10.1080/03772063.2021.1874839>.
43. P. Mitra, C. Dey, R.K. Mudi, "Fuzzy rule-based set point weighting for fuzzy PID controller" (2021) SN Applied Sciences, 3 (6), art. no. 651, 2021, <http://doi.org/10.1007/s42452-021-04626-0>.
44. R.R. De(Maity), R.K. Mudi, C. Dey, "Lyapunov approach based design of a gain adaptive interval type-2 fuzzy controller for servo systems," Journal of Intelligent and Fuzzy Systems, Vol. 40, no. 3, pp. 4187-4205, 2021. <https://dx.doi.org/10.3233/JIFS-200802>.

### **E. Research Articles Published in Edited Volumes during the year:**

**(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):**

1. Electronic Tongue for Tea Quality Assessment: Advanced Signal Processing Techniques for Estimation of Thearubigin and Theaflavin – Book Chapter in Advancements in Instrumentation and Control in Applied System Applications, IGI Global, pp. 108-128, 2020

### **F. Research Articles Published in Conference Proceedings during the year:**

**(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year):**

1. Sukanta Ghosh, Abhijit Chandra and Rajani K. Mudi, "On Hippocampus Associative Modeling by Approximating Nonlinear Kullback-Leibler Sparsity Constraint", in Proceedings of 2021 International Conference on Computer Communication and Informatics (ICCCI 2021), Coimbatore, India, 27-29 January, 2021.
2. Sanghamitra Poddar, Subhash Chandra Panja, Sankar Narayan Patra, Debanjan Ghosh, and Debajyoti Saha. "A metaheuristic approach to optimize maintenance productivity of Indian railway coach and bogie". I IEEE International IOT, Electronics and Mechatronics Conference (IEMTRONICS), pp. 1-10. IEEE, 9-12 Vancouver, BC, Canada, September. 2020
3. Debangana Das, Shreya Nag, Upasana Saha, Bipan Tudu, Runu Banerjee Roy, "Development of Molecularly Engraved Polymer Based Sensor for Detection of Theobromine in Tea" 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI), 8-10 January. 2021, Kolkata, India.
4. Shreya Nag, Debangana Das, Bipan Tudu, Runu Banerjee Roy, "Multivariate Analysis of Formalin Using UV-Vis Spectroscopy" 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI), 8-10 January. 2021, Kolkata, India.
5. Shreya Nag, Debangana Das, Hemanta Naskar, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, "Estimation of theophylline in black tea using NIR spectroscopy," 2020 International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET 2020), NIT Patna, India, 10-11 July, 2020.
6. Samhita Dasgupta, Barnali Ghatak, Sanjoy Banerjee, Sk Babar Ali, Jyotsna Dei, Bijay Kumar Behera, Runu Banerjee Roy, Bipan Tudu, "Development of linseed oil based quartz crystal microbalance sensor for detection of trimethylamine," 2020 International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET 2020), NIT Patna, India, 10-11 July, 2020.

## Annual Report 2020-2021

7. Debangana Das, Shreya Nag, Hemanta Naskar, Ajanto Kumar Hazarika, Runu Banerjee Roy, Santanu Sabhapondit, Bipan Tudu, Rajib Bandyopadhyay, “Discrimination of various clones of black tea using NIR spectroscopy,” 2020 International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET 2020), NIT Patna, India, July 10-11, 2020.
8. Jyotsna Dei, Hemanta Naskar, Samhita Dasgupta, Shreya Nag, Bijay Kumar Behera, Bipan Tudu, Runu Banerjee Roy, Rajib Bandyopadhyay, “Fish freshness assessment using NIR spectroscopy,” 2020 International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET 2020), NIT Patna, India, 10-11 July, 2020.
9. Mahua Pal, Dhiman Biswas, Anusree Das, Kumardeb Banerjee, Bivas Dam, “Rapid Modeling of a Fast-Steering Mirror Assembly from Time Response Data”, Proceedings of the Fourth International Conference on Microelectronics, Computing and Communication Systems, 2020
10. Mitra S, Banerjee D, Naskar MK. A Low Latency Stochastic Square Root Circuit. In 2021 34th International Conference on VLSI Design and 2021 20th International Conference on Embedded Systems (VLSID) 2021 February 20 (pp. 7-12). IEEE.
11. U. M. Nath, C. Dey, and R. K. Mudi, “Designing of Fuzzy rule based switching mechanism for IMC controller for temperature controlling process”, Procedia Computer Science, vol. 167, pp. 1363-1369, 2020. <https://doi.org/10.1016/j.procs.2020.03.347>.
12. U. M. Nath, C. Dey, R. K. Mudi, “Designing of dynamic Kalman filter for prediction of mean arterial blood pressure”, Procedia Computer Science, vol. 167, pp. 2478-2485, 2020. <https://doi.org/10.1016/j.procs.2020.03.300>.
13. U. M. Nath, C. Dey, and R. K. Mudi, ‘Switching mechanism of internal model control based PI controller for lag dominating processes, Lecture Notes in Electrical Engineering, vol. 692, pp. 347-355, Springer, Singapore, 2021. [https://doi.org/10.1007/978-981-15-7486-3\\_32](https://doi.org/10.1007/978-981-15-7486-3_32).
14. U. M. Nath, C. Dey, and R. K. Mudi, ‘Controlling of twine rotor MIMO system based on multivariable model predictive control’, Lecture Notes in Electrical Engineering, vol. 692, pp. 493-499, Springer, Singapore, 2021. [https://doi.org/10.1007/978-981-15-7486-3\\_44](https://doi.org/10.1007/978-981-15-7486-3_44).

### G. Patents Granted/ Published/ Filed during the year:

**Annual Report 2020-2021**

<b>Name of the Inventors</b>	<b>Title of the Patent</b>	<b>National/ International</b>	<b>Status Granted/ Published/ Filed</b>	<b>Patent Number</b>	<b>Date of Publication</b>
Dr. Nabarun Bhattacharyya Mrs. Trisita Nandy Chatterjee Mrs. Runu Banerjee Roy Prof. Bipan Tudu Prof. Panchanan Pramanik Mr. Pradip Tamuly Prof. Rajib Bandyopadhyay Mr. Devdulal Ghosh	A Process For Forming A Molecular Imprinted Polymer (Mip) Based Electrode For Accurate Quantitative Detection Of Total Theaflavin (Tf) In Black Tea	National	Granted	342192 Application No.2017310 11451, Date - 30.03.2017 RFE- 13.04.2017	22.07.2020
Prof. Bipan Tudu, Prof Rajib Bandyopadhyay, Dr Babar Ali, Mr Sanjay Banerjee, Ms Barnali Ghatak Prof. Nityananda Das, Dr Dipankar Mandal	A novel self-powered triboelectric mask	National	Published	2020310256 22	20.06.2020

5. **Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**
- C. **Seminar/Workshop/Conference/Symposium Organized:**  
(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):



## Annual Report 2020-2021

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
FIRST INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY RESEARCH , 2020	DR SANKAR NARAYAN PATRA, Astronomical instruments Design Laboratory, I.E.E. Dept, J.U. with collaboration of Society of Advance Multidisciplinary Research & Practice	ICMR 2020 ABSTRACTS PROCEEDINGS	online	29-30 August, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Abhijit Chandra	Invited lecture	First International Conference on Multidisciplinary Research (ICMR 2020)	Online	29-30 August, 2020
Rajib Bandyopadhyay	Keynote Speaker	First International Conference on Multidisciplinary Research (ICMR 2020)	Online	29-30 August, 2020
Bipan Tudu	Invited Lecture	First International Conference on Multidisciplinary Research (ICMR 2020)	Online	29-30 August, 2020
Prolay Sharma	Invited Lecture	First International Conference on Multidisciplinary Research (ICMR 2020)	Online	29-30 August, 2020

**7. Extension Activities of the Department during the year:**

**A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

**B. Activities for the Society**

The teachers of IEE department extended a small support to Bharat Sevashram, Kolkata in the month of June,2020 for benefit of the people who suffered most due to sudden lockdown across the country.

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

## Annual Report 2020-2021

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
1	B.E. Instrumentation & Electronics Engg.	Electronics Systems Engineering	IISc, Bangalore
1	B.E. Instrumentation & Electronics Engg.	Instrumentation Systems	IISc, Bangalore
1	B.E. Instrumentation & Electronics Engg.	VLSI Systems	IIT, Mumbai
1	B.E. Instrumentation & Electronics Engg.	Signal Processing	IISc, Bangalore

### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
GATE	6
CAT	2

## MECHANICAL ENGINEERING

Phone: 033-2457-2248/2292/2658

H.O.D : Prof. Goutam Majumder

Prof. Sumanta Neogi (since 9.4.2020)

E-mail: [hodmechanical@jadavpuruniversity.in](mailto:hodmechanical@jadavpuruniversity.in)

### 1. Vision and Mission of the Department:

A. **Vision:** To impart quality education in Mechanical Engineering so as to cater to the prevalent and emerging needs of the society and industry.

### B. Mission:

To develop Engineering capabilities at par with global standards;

To meet relevant industrial and societal needs;

To motivate students to quality research and scholarly activities;

To promote innovative and collaborative activities for facing emerging challenges.

## Annual Report 2020-2021

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Bachelor's Degree in Mechanical Engineering (4 Years)	4 Years	1 <sup>st</sup> year	147
		2 <sup>nd</sup> year	162
		3 <sup>rd</sup> year	132
		4 <sup>th</sup> year	112
Bachelor's Degree in Mechanical Engineering (Evening) (5 Years)	5 Years	1 <sup>st</sup> year	34
		2 <sup>nd</sup> year	32
		3 <sup>rd</sup> year	27
		4 <sup>th</sup> year	27
		5 <sup>th</sup> year	21
Master's Degree in Mechanical Engineering (2 Years)	2 Years	1 <sup>st</sup> year	32
		2 <sup>nd</sup> year	26
Master's Degree in Automobile Engineering (2 years)	2 years	1 <sup>st</sup> year	23
		2 <sup>nd</sup> year	14

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
37	8	14	54

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

**Prof. Sudipta De:**Sustainable energy, energy systems integration and analysis

**Prof. Prasanta Sahoo :**Tribology, Composites, Coatings, Contact Mechanics

**Prof. Anirban Mitra:**Vibrations and Dynamics, Tribology, Material Characterization

**Prof. Tanmoy Bandyopadhyay:**Finite Element Methods, Composite Materials.

**Prof. Prokash Chandra Roy:**Renewable Energy, Energy from Biomass, Biofuels, Analysis of Fluid flow and heat transfer, Pulse Tube Refrigeration,

## Annual Report 2020-2021

**Prof. Anindya Sundar Das:** Rotor Dynamics, Vibration, Active Vibration Control.

**Prof. Hareram Lohar:** Vibration, Structural Analysis

**Prof. Sandip Sarkar:**CFD, FSI, Fluid Mechanics, Microfluidics

**Prof. Nirmal Manna**

**Prof Debabrata Das:**Computational Solid Mechanics

**Somenath Bhattacharya:**Optimization, Simulation, Flight Dynamics

### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Enhancing Quality Assurance Management and Benchmarking Strategies in Indian Universities (EQUAM-BI)	Multi-institutional involving six EU and eight Indian partners	JaumeFortuny of University of Barcelona, Spain as the EU Coordinator (Prof. Sudipta De as member of the JU team)	Co-funded by Erasmus+ Programme and the EU	2018-2021
Experimental Investigation of a Downdraft Biomass Gasifier using different Biomass Feedstocks	Individual	Prokash Chandra Roy	SERB (DST)	2018-2021
Ferrofluid actuated liquid dispenser for wearable microfluidic drug delivery system.	Individual	Sandip Sarkar	SERB-DST	2019-2021
Vortex-induced vibrations of a rotating sphere close to a solid wall.	Individual	Sandip Sarkar	DST funded NSM project	2021-2023
Indo Hungarian Industrial Project – “Applied Industrial Research for the Thermolytic Recovery of sludge like wastes for the Circular Economy and Biogeochemical cycle”	Individual	Prof . Sadhan K Ghosh	Indo-Hungarian Inter-Governmental Science & Technological Cooperation Program Indo-Hungarian Joint Research, Funded by DST & Hungary. Funding by DST: INR 34.59 Lakh.	(2021-2023)

**Annual Report 2020-2021**

SINTEF, Norway funded project : Ocean Plastic Turned into an Opportunity in Circular Economy (OPTOCE), Collaborative Research Project to Combat Marine Littering and Microplastics in Asia, (in India, Thailand, Vietnam, China and Norway)	Individual	Prof Sadhan K. Ghosh	OPTOCE-project, SINTEF Energi AS, SINTEF Fiskerioghavbruk AS, SINTEF Petroleum AS and Norsk Marinteknisk Forskningsinstitutt AS (MARINTEK), Norway, Prof. Sadhan K Ghosh has been invited to Lead the project in India in March 2020- INR 7,92,000/-.	December 2020- October 2021
Elaboration of waste-free method for obtaining alternative sorbents from solid organic polymer waste for the development of country's circular economy;	Main Partner: Ms. Natela D	Prof. Sadhan K Ghosh	Foundation: "Shota Rustaveli National Science Foundation of Georgia" <a href="http://rustaveli.org.ge/en">http://rustaveli.org.ge/en</a> ;	Project start: 01.11.2021; Project end: 01.02.2023
UNCRD, Japan; ISWMAW, CRIC (Consortium of researchers in international collaboration), India supported Research Project, 4 <sup>th</sup> phase: International Collaborative Research Project on, "Global Status of implementation of Circular Economy" (2020-2023), participated by experts from 32 countries.	Individual	Prof. Sadhan K Ghosh	Participating countries to be decided soon to develop the project, "Circular Economy: Recent Trends in Global Perspective" and "Circular Economy: Policy, Innovation, Technology and Business".	(2020-2023)
Circular Economy adoption within small and medium sized enterprises in India and the UK, (Total :40,000 GBP)	Individual	Prof . Sadhan K Ghosh	Royal Academy of Engineering, UK funded	2019-2021

## Annual Report 2020-2021

Social Wellbeing and Mental Health Challenges of Employees of Small and Medium Sized Enterprise (SMEs) in Emerging Economies (2019-2020) : (10,000 GBP).	Individual	Prof . Sadhan K Ghosh	Funded by Global Challenge Research Funding, UK	2019-2020
Development of an Integrated Methodology for Determination of the Likelihood of Emerging Illegal Dumpsites in High Mountainous Rural Regions on the Example of Georgia, (GEL 180 000).	Partner: Institute of Hydrometeorology at Georgian Technical University, Georgia& Jadavpur University (Contd.)	Prof . Sadhan K Ghosh	Shota Rustaveli National Science Foundation (SRNSF), Georgia, funded	2019-2022
India H2O bio-mimetic and phyto-technologies designed for low-cost purification and recycling of water. 20 participating organizations from 7 countries- India, UK, Denmark, Singapore, Spain, Netherlands and Israel. (INR 130 million)	PI from Jadavpur University.	Prof . Sadhan K Ghosh	European Union funded: Horizon 2020 Research projects from European commission	July 2018 – June 2022

### A. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
07 (01 January, 2021 – Till Date)	21 (01 January, 2021 – Till Date)

### B. Research Articles Published in Journals during the year (International/National Peer-reviewed journals) (Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

#### Prof. Sudipta De:

1. Ray, A. and **De, S.\*** (2021): ‘A small scale distributed polygeneration with local renewable resources for a remote place of India: techno-economic optimization’, **International Journal of Ambient Energy (Taylor and Francis, I.F-2.33)**, 42(9), 985-998.
2. Pati, S. and **De, S.\*** (2021), ‘Model development and thermodynamic analysis of biomass co-gasification using Aspen plus®’, **Indian Chemical Engineer (Taylor & Francis, I.F= 1.09)**, 63(2), 172-183.

## Annual Report 2020-2021

- Sahana, C., **De, S.** and Mondal, S. (2021): 'Integration of CO<sub>2</sub> power and refrigeration cycles with a desalination unit to recover geothermal heat in an oilfield', **Applied Thermal Engineering (Elsevier, I.F= 5.295)**, 189, 116744
- Pati, S., **De, S.**, Chowdhury, R. (2021): 'Process modelling and thermodynamic performance optimization of mixed Indian lignocellulosic waste co-gasification', **International Journal of Energy Research (Wiley, I.F= 5.164)**, 45, 17175-17188.
- Kumar, G., Thakur, B., **De, S.\*** (2021): 'Energy performance of typical large residential apartments in Kolkata: implementing new energy conservation building codes of India', **Clean Technologies and Environmental Policy (Springer, I.F= 3.636)**, 23(4), 1251-1271.
- Das, S., Ray, A., **De, S.\*** (2020): 'Optimum combination of renewable resources to meet local power demand in distributed generation: A case study for a remote place of India', **Energy (Elsevier, I.F= 7.147)**, 209, 118473.
- Mondal, S., **De, S.\*** (2020): 'Performance assessment of a low-grade heat driven dual ejector vapour compression refrigeration cycle', **Applied Thermal Engineering (Elsevier, I.F= 5.295)**, 179, 115782.
- Somehsaraei, H.N., Ghosh, S., Maity, S., ...**De, S.\***, Assadi, M. (2020): 'Automated data filtering approach for ANN modeling of distributed energy systems: Exploring the application of machine learning', **Energies (MDPI, I.F= 3.004)**, 13(14), 3750.
- Mondal, S., Datta, S., **De, S.\*** (2020): 'Auxiliary power through marine waste heat recovery using a CO<sub>2</sub>-organic cascading cycle', **Clean Technologies and Environmental Policy (Springer, I.F= 3.636)**, 22(4), 893-906.

### Prof. Prasanta Sahoo

- S Banerjee, G Sutradhar, **P Sahoo** (2021) Design of experiment analysis of elevated temperature wear of Mg-WC nano-composites, Reports in Mechanical Engineering 2 (1), 202-211.
- P Naik, S Pradhan, SK Acharya, **P Sahoo** (2021) Effect of Carbonization of Orange Peel Particulate Reinforced Polymer Composites: Mechanical and Morphological Properties, International Journal of Surface Engineering and Interdisciplinary Materials Science, in press.
- DM Shinde, **P Sahoo** (2021) Nanoindentation, Scratch, and Corrosion Studies of Aluminum Composites Reinforced with Submicron B<sub>4</sub>C Particles, International Journal of Metalcasting <https://doi.org/10.1007/s40962-021>
- P Basu, SK Acharyya, **P Sahoo** (2021), Effect of microstructural constituents and morphological characteristics on low cycle fatigue behaviour of inter-critically annealed 20MnMoNi55 steel, Proc IMechE Part L: J Materials: Design and Applications, 1-19.
- P Naik, S Pradhan, SK Acharya, **P Sahoo** (2021) Effect of pretreatment on mechanical properties of orange peel particulate (bio-waste) reinforced epoxy composites, International Journal of Manufacturing, Materials, and Mechanical Engineering, in press.
- D Mohanty, TK Barman, **P Sahoo** (2021) Effect of incorporation of nano-alumina on tribo-mechanical behavior of electroless Ni-B coatings, Journal TRIBOLOGI, 30, 24-43.
- DM Shinde, **P Sahoo** (2021) Influence of speed and sliding distance on the tribological performance of submicron particulate reinforced Al-12Si /1.5 wt% B<sub>4</sub>C composite, International Journal of Metalcasting DOI: 10.1007/s40962-021-00636-1
- S Banerjee, **P Sahoo**, JP Davim (2021) Tribological characterisation of magnesium matrix nanocomposites: A review, Advances in Mechanical Engineering 13 (4), 16878140211009025.
- A Biswas, SK Das, **P Sahoo** (2021) Oxidation issues during heat treatment and effect on the tribo-mechanical performance of electroless Ni-P-Cu deposits, Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials Design and Applications, Volume: 235 issue: 7, page(s): 1665-1685.
- P Naik, **P Sahoo**, SK Acharya, S Pradhan (2021) Erosive wear behavior of bio-waste particulate-reinforced epoxy composites for low cost applications. J Indian Acad Wood Sci 18, 1-13 (2021). <https://doi.org/10.1007/s13196-020-00272-y>.

## Annual Report 2020-2021

11. P Naik, SK Acharya, **P Sahoo**, S Pradhan (2021) Abrasive wear behaviour of orange peel (biowaste) particulate reinforced polymer composites, Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology, Volume: 235 issue: 10, page(s): 2099-2109
12. T Jana, A Mitra, **P Sahoo** (2021) Flattening analysis of plastically graded cylindrical contact under plane stress condition, IOP Conference Series: Materials Science and Engineering 1080 (1), 012017.
13. S Banerjee, S Poria, G Sutradhar, **P Sahoo** (2021) Experimental Optimization of Abrasive Wear of AZ31-WC Nanocomposites, Journal of Manufacturing Technology Research 13 (1-2).
14. S Poria, G Sutradhar, **P Sahoo** (2021) Abrasive wear behavior of Al-TiB<sub>2</sub> and Al-TiB<sub>2</sub>-nano-graphite metal matrix composites, Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials Design and Applications, Volume: 235 issue: 5, page(s): 1146-1159.
15. A Biswas, S Das, **P Sahoo** (2021) Effect of copper incorporation on phase transformation behavior of electroless nickel- phosphorous coating and its effect on tribological behavior, Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials Design and Applications, Volume: 235 issue: 4, page(s): 898-916.
16. M Barman, TK Barman, **P Sahoo** (2021) Effect of Coating Bath Parameters on Properties of Electroless Nickel-Boron Alloy Coatings, International Journal of Surface Engineering and Interdisciplinary Materials Sciences, In press.
17. S Kundu, SK Das, **P Sahoo** (2021) Influence of Alumina Particles on Tribology of Autocatalytic Ni-P Coatings at High Temperature, International Journal of Surface Engineering and Interdisciplinary Materials Science, 9(1), 1-25.
18. S Banerjee, S Poria, G Sutradhar, **P Sahoo** (2020) Dry Sliding Characteristics of Mg-WC Nano-Composites Using Grey Relational Optimization, Journal of Manufacturing Technology Research 12 (1-2), 83-98.
19. S Banerjee, S Poria, G Sutradhar, **P Sahoo** (2021) Nano-indentation and Corrosion Characteristics of Ultrasonic Vibration Assisted Stir-Cast AZ31-WC-Graphite Nano-composites. Inter Metalcast 15, 1058-1072 (2021). <https://doi.org/10.1007/s40962-020-00538-8>.
20. T Jana, A Mitra, **P Sahoo** (2020), Contact behavior of functionally graded fractal surface, Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, Volume: 234 issue: 10, page(s): 1355-1374.
21. A. Mukhopadhyay, TK. Barman, **P. Sahoo** (2020), Co-deposition of W and Mo in electroless Ni-B coating and its effect on the surface morphology, structure, and tribological behavior, Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, <https://doi.org/10.1177/1464420720956270>.
22. S Pal, S Bhattacharjee, SK Acharyya, **P Sahoo** (2020), Finite element simulation of fracture toughness testing of 20MnMoNi55 steel and the effect of loading rate on reference temperature, Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications, <https://doi.org/10.1177/1464420720956673>.
23. D. Shinde, S. Poria, **P. Sahoo** (2020) High Temperature Tribology of A413/B4C Nanocomposites under Dry Sliding Contact, Materials Performance and Characterization, 9(1), 477-496.
24. D M Shinde, S Poria, **P Sahoo** (2020) Dry sliding wear behavior of ultrasonic stir cast boron carbide reinforced aluminium nanocomposites, Surface Topography: Metrology and Properties, 8(2), 025033
25. DM Shinde, **P Sahoo**, J P Davim (2020) Tribological characterization of particulate-reinforced aluminum metal matrix nanocomposites: A review, Advanced Composites Letters, 29, 2633366X20921403
26. S Banerjee, S Poria, G Sutradhar, **P Sahoo** (2020) Abrasive wear behavior of WC nanoparticle reinforced magnesium metal matrix composites, Surface Topography: Metrology and Properties 8 (2), 025001
27. P Naik, S Pradhan, **P Sahoo**, SK Acharya (2020) Study of mechanical behaviour of raw and chemical treated bio-filler composites and its effect on moisture absorption, Materials Today: Proceedings, Volume 26, Part 2, 2020, Pages 1936-1940.
28. P Naik, S Pradhan, **P Sahoo**, SK Acharya (2020) Effect of filler loading on mechanical properties of natural carbon black reinforced polymer composites, Materials Today: Proceedings, Volume 26, Part 2, 2020, Pages 1892-1896



## Annual Report 2020-2021

29. T Jana, A Mitra, **P Sahoo** (2020) Unloading analysis of elastically and plastically graded hemispherical contact with rigid flat, *Tribology International* 142, 105973
30. S Banerjee, S Poria, G Sutradhar, **P Sahoo** (2020) Optimization of Tribological Behavior of Mg-Wc Nanocomposites at Elevated Temperature, *International Journal of Surface Engineering and Interdisciplinary Materials Science (IJSEIMS)*, 8(1), 25-43

### **Prof. Sadhan Kumar Ghosh:**

1. Natalia Putinceva, Marina Ivanova, Maria Liubarskaia, **Sadhan Kumar Ghosh**, (2020), Implementation of Renewable Energy Sources in the Russian Energy System: Opportunities and Threats, DTMS '20, November 18–19, 2020, Saint Petersburg, Russian Federation © 2020 Association for Computing Machinery. ACM ISBN 978-1-4503-8890-0/20/11...\$15.00 <https://doi.org/10.1145/3446434.3446509>.
2. Baidya, R., & **Ghosh, S. K.** (2020). Co-processing of industrial trade rejects in cement plant. *Waste Management & Research*, 38(12), 1314-1320.
3. Baidya, R., & **Ghosh, S. K.** (2021). Disposal of Hazardous Industrial Waste in Cement Kiln – A Pilot Study of Acid Tar Sludge, *Waste Management & Research*, <https://doi.org/10.1177/0734242X211055544>.
4. Baidya, R., Debnath, B., Ghosh, S. K., & Rhee, S. W. (2020). Supply chain analysis of e-waste processing plants in developing countries. *Waste Management & Research*, 38(2), 173-183.

### **Prof. Anirban Mitra:**

1. Tamonash Jana, **Anirban Mitra**, Prasanta Sahoo, “Investigation on contact behaviour of functionally graded fractal surface”, *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*. 2020, vol. 234(10), pp. 1355-1374. [SCIE; Impact Factor: **2.014**]

### **Prof. Tanmoy Bandyopadhyay:**

1. Tripuresh Deb Singha, Mrityunjay Rout, Tanmoy Bandyopadhyay, Amit Karmakar, “Free vibration analysis of rotating pretwisted composite sandwich conical shells with multiple debonding in hygrothermal environment”, *Engineering Structures* 204 (2020) 110058, pp-1-19, DOI: <https://doi.org/10.1016/j.engstruct.2019.110058>.
2. Tripuresh Deb Singha, Mrityunjay Rout, Tanmoy Bandyopadhyay, Amit Karmakar, “Free vibration of rotating pretwisted FG-GRC sandwich conical shells in thermal environment using HSDT”, *Composite Structures* 257 (2021) 113144, pp. 1-17, DOI: <https://doi.org/10.1016/j.compstruct.2020.113144>.
3. Tripuresh Deb Singha, Tanmoy Bandyopadhyay, Amit Karmakar “Thermoelastic free vibration of rotating pretwisted sandwich conical shell panels with functionally graded carbon nanotube-reinforced composite face sheets using higher-order shear deformation theory”, *Proc IMechE Part L: J Materials: Design and Applications*, 0(0) 1–27, 2021, DOI: 10.1177/1464420721999412.
4. Tripuresh Deb Singha, Tanmoy Bandyopadhyay, Amit Karmakar, “Dynamic behavior of temperature-dependent FG-CNTRC sandwich conical shell under low-velocity impact”, *Mechanics of Advanced Materials and Structures*, DOI: 10.1080/15376494.2021.1980930.

### **Prof. Prokash Chandra Roy**

1. Abhishek Samanta and Prokash C Roy, An Empirical Investigation of Biodiesel Engine Fuelled with Palm Oil Methyl Ester Biodiesel Blends, 2020 *International Journal of Vehicle Structures and Systems*, 12(1), pp. 85-88, <https://www.scopus.com/sourceid/21100197978>
2. Abhishek Samanta and Prokash C Roy, Repercussion of neem oil & palm oil biodiesel blends (b5 & b10) and Diethyl ether & 1-butanol with palm oil biodiesel blends on Performance of a unmodified diesel engine, 2020, *International Journal of Mechanical and Production Engineering Research and Development (IJMPERD)* <https://www.scopus.com/sourceid/21100814505>
3. A. Samanta, Prokash C. Roy, 2021, Pragmatic Analysis on Performance and Emission and a Single-Zone Engine Model Development with Inedible Neem and Waste Vegetable Oil Biodiesel Blend

## Annual Report 2020-2021

- (B10), *International Journal of Energy for a Clean Environment*, 22(1), 53-89 DOI: 10.1615/InterJenerCleanEnv.2020035349
4. Das, Sampad Kumar; Roy, Prokash C. 2021, Thermodynamic Analysis of Biomass Gasification for Energy Sustainability in Bangladesh and Major Crop Producing Asian Countries. *International Energy Journal* . 2021 Special Issue, p69-80. 12p
  5. Abhishek Samanta, Sourav Goswami, Prokash C. Roy, 2020, Producing Biodiesel and Optimized by Taguchi Design against Palm Oil as Sustainable Alternative Fuels in Bangladesh, *International Energy Journal* 20 (2020) Special Issue 3A, 411 – 420.

### **Prof. Anindya Sundar Das:**

1. Tukesh Soni, Jayanta K. Dutt, and A. S. Das, Magnetic Bearings for Marine Rotor Systems—Effect of Standard Ship Maneuver, *IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS*, Volume 68 (2), 1055–1064, FEBRUARY 2021.

### **Prof. Sandip Sarkar:**

1. A. K. De and S. Sarkar. Wake events during early three-dimensional transition of a circular cylinder placed in shear flow. *Physics of Fluids*, volume 32, page 053603, 2020. (American Institute of Physics, I.F= 3.521)
2. A. K. De and S. Sarkar. Three-dimensional wake dynamics behind a tapered cylinder with large taper ratio. *Physics of Fluids*, volume 32, page 063604, 2020. (American Institute of Physics, I.F= 3.521)
3. S. Sarkar. Streaming-potential-mediated pressure-driven transport of phan-thien-tanner fluids in a microchannel. *Physical Review E*, volume 101, page 053104, 2020. (American Physical Society, I.F= 2.529)
4. U. Kashyap, A. P. Pawar, S. Sarkar, and S. K. Saha. Experimental and numerical study of effect of secondary surfaces fixed over rectangular vortex generator with an overview of dynamic mode decomposition. *Physics of Fluids*, volume 32, page 057101, 2020. (American Institute of Physics, I.F= 3.521)
5. S. Sarkar, C. Mondal, N. K. Manna, and S. K. Saha. Forced convection past a semi-circular cylinder at incidence with a downstream circular cylinder: Thermofluidic transport and stability analysis. *Physics of Fluids*, volume 33, page 023603, 2021. (American Institute of Physics, I.F= 3.521)
6. V. Tiwari, S. Simlandi, and S. Sarkar. Turbulent flow and heat transfer characteristics of non-newtonian impinging jets on a flat plate. *Journal of The Institution of Engineers (India): Series C*, volume 102, pages 807–820, 2021. (Springer).

### **Prof Nirmal Manna**

1. Biswas, N., Manna, N.K., Datta, A., Mandal, D.K., & Benim, A.C. (2020). Role of aspiration to enhance MHD convection in protruded heater cavity. *Progress in Computational Fluid Dynamics*. 20:6, 363–378 DOI: 10.1504/PCFD.2020.111408.
2. Hossain, M. N., Ghosh, K., & Manna, N. K. (2020). A multiphase model for determination of minimum circulation ratio of natural circulation boiler for a wide range of pressure. *International Journal of Heat and Mass Transfer*, 150, 119293. <https://doi.org/10.1016/j.ijheatmasstransfer.2019.119293>
3. Hossain, M. N., Ghosh, K., & Manna, N. K. (2020). Two-phase thermo-hydraulic model of a 210 MW thermal power plant boiler for designing the riser-downcomer circuit. *Thermal Science and Engineering Progress*, 18, 100537. <https://doi.org/10.1016/j.tsep.2020.100537>
4. Biswas, N., Chamkha, A. J., & Manna, N. K. (2020). Energy-saving method of heat transfer enhancement during magneto-thermal convection in typical thermal cavities adopting aspiration. *SN Applied Sciences*, 2(11) doi:10.1007/s42452-020-03634-w
5. Biswas, N., Datta, A., Manna, N. K., Mandal, D. K., & Gorla, R. S. R. (2020). Thermo-bioconvection of oxytactic microorganisms in porous media in the presence of magnetic field. *International Journal of Numerical Methods for Heat & Fluid Flow*. <https://doi.org/10.1108/HFF-07-2020-0410>
6. Hazra, C., Biswas, N., & Manna, N.K. (2020). Thermal magneto-hydrodynamics in a ventilated porous enclosure. *Sadhana*. 45:224, 1 – 12, doi: 10.1007/s12046-020-01459-2.

## Annual Report 2020-2021

- Mondal, C., Sarkar, R., Sarkar, S., Biswas, N. & Manna, N.K. (2020). Magneto-thermal convection in lid-driven cavity. *Sadhana*. 45:227, 1 – 16, doi: 10.1007/s12046-020-01463-6.
- Biswas, N., Chamkha, A. J., & Manna, N.K. (2021). Effects of half-sinusoidal nonuniform heating during MHD thermal convection in Cu–Al<sub>2</sub>O<sub>3</sub>/water hybrid nanofluid saturated with porous media. *Journal of Thermal Analysis & Calorimetry*.143 (2021) 1665–1688, doi: 10.1007/s10973-020-10109-y.
- Biswas, N., Sarkar, U. K., Chamkha, A. J., & Manna, N.K. (2021). Magneto-hydrodynamic thermal convection of Cu–Al<sub>2</sub>O<sub>3</sub>/water hybrid nanofluid saturated porous media subjected to half-sinusoidal non-uniform heating. *Journal of Thermal Analysis & Calorimetry*.143, 1727–1753, doi: 10.1007/s10973-020-10123-0.
- Mallick, H., Mondal, H., Biswas, N., & Manna, N.K. (2021). Buoyancy driven flow in a parallelogrammic enclosure with an obstructive block and magnetic field. *Materials Today: Proc.* 44(2), 3164-3171 doi: 10.1016/j.matpr.2021.02.825.
- Hossain, M. N., Ghosh, K., & Manna, N. K. (2021). A Two-Phase Flow Model for Thermal Design of the Riser-Downcomer System Pertaining to a 600 MW Subcritical Boiler. *Journal of Thermal Science and Engineering Applications*, 13(1), 011021. <https://doi.org/10.1115/1.4047563>
- Sarkar, S., Mondal, C., Manna, N. K., & Saha, S. K. (2021). Forced convection past a semi-circular cylinder at incidence with a downstream circular cylinder: Thermofluidic transport and stability analysis. *Physics of Fluids*, 33(2), 023603. <https://doi.org/10.1063/5.0039167>
- Biswas, N., Manna, N. K., Mandal, D. K., & Gorla, R. S. R. (2021). Magneto-hydrodynamic bioconvection of oxytactic microorganisms in porous media saturated with Cu–water nanofluid. *International Journal of Numerical Methods for Heat & Fluid Flow*. <https://doi.org/10.1108/HFF-08-2020-0538>
- Mondal, M.K., Biswas, N., Manna, N.K., & Chamkha, A.J. (2021). Enhanced magneto-hydrodynamic thermal convection in a partially-driven cavity packed with a nanofluid-saturated porous medium. *Mathematical Methods in the Applied Sciences*.doi: 10.1002/mma.7280.
- Manna, N.K., Mondal, M.K., Biswas, N. (2021). A novel multi-banding application of magnetic field to convective transport system filled with porous medium and hybrid nanofluid. *Physica Scripta*. 96, 065001 doi: 10.1088/1402-4896/abecbf.

### Prof. Nipu Modak

- Abhishek Samanta, and **Nipu Modak**, Influence of operating parameters in particle spreading, separation and capturing in a hybrid free flow magnetophoretic bio-separator, **Physics of Fluids**, AIP Publishing, **Impact factor 3.521**, Vol: 32, issue 11, Article No.112012, 2020.
- Partha Haldar, Tapas Kumar Bhattacharya, **Nipu Modak**; Effect of Nano CuO Addition on the Tribo-Mechanical Behavior of Alumina Ceramics in Non-Conformal Contact; **International Journal of Applied Ceramic Technology**, SCIE, The American ceramic society, **Impact factor 1.762**; 18(1); pages: 110-118; DOI: 10.1111/ijac.13620; January/February 2021.
- Bhaskar Guin, Kaustav Ghar, **Nipu Modak**; Design and Development of an Indian Harmonium with Automatic Bellow Mechanism; **IOP Science Journal of Physics: Conference Series**; 1950 (2021) 012021, DOI: 10.1088/1742-6596/1950/1/012021.

### C. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

### Prof. Sudipta De:

- Jana, K. and **De, S.\*** (2021): 'Efficient and low - carbon energy solution through polygeneration with biomass', in **Advances in Carbon Management Technologies, ISBN 9780367520496 (CRC Press)**, Editors: Subhas K. Sikdar and Frank Princiotta, Vol 2, pp. 208-226.
- Jana, K. and **De, S.\*** (2020): 'Overview of CCS: A Strategy of Meeting CO<sub>2</sub> Emission Targets', **Encyclopedia of Renewable and Sustainable Materials, ISBN978-0-12-813196-1(Elsevier)**, Vol.3, pp. 628-639, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury.

## Annual Report 2020-2021

3. Ray, A and **De, S.\*** (2020): 'Renewable Electricity Generation: Effect on GHG Emission'. **Encyclopedia of Renewable and Sustainable Materials, ISBN 978-0-12-813196-1 (Elsevier)**, Vol.3, pp. 728-735, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury.
4. Mondal, S. and **De, S.\*** (2020): 'Power and Other Energy Utilities From Low Grade Waste Heat – Novel Technologies to Reduce Carbon Footprint, **Encyclopedia of Renewable and Sustainable Materials, ISBN 978-0-12-813196-1 (Elsevier)**, Vol.3, pp. 667-677, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury.
5. Jana K and **De, S.\*** (2020): 'Polygeneration as efficient and de-carbonized energy solution', **Encyclopedia of Renewable and Sustainable Materials, ISBN 978-0-12-813196-1 (Elsevier)**, Vol.3, pp. 655-666, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury.
6. Ray A and **De S.\*** (2020): 'Hybrid Renewable Multigeneration: Low Carbon Sustainable Solution with Optimum Resource Utilization', **Encyclopedia of Renewable and Sustainable Materials, ISBN 978-0-12-813196-1 (Elsevier)**, Vol.3, pp. 526-533, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury.

### Prof. Prasanta Sahoo

1. Biswas P., Das S.K., **Sahoo P.** (2021) Deposition of Duplex and Multilayer Electroless Ni–P/Ni–B Coating and Study of Their Wear Resistance. In: Ghosh S.K., Ghosh K., Das S., Dan P.K., Kundu A. (eds) *Advances in Thermal Engineering, Manufacturing, and Production Management. ICTEMA 2020. Lecture Notes in Mechanical Engineering.* Springer, Singapore. [https://doi.org/10.1007/978-981-16-2347-9\\_23](https://doi.org/10.1007/978-981-16-2347-9_23)
2. S Banerjee, S Poria, G Sutradhar, **P Sahoo** (2021) Optimization of Tribological Behavior of Mg-WC Nanocomposites at Elevated Temperature, In: *Research Anthology on Synthesis, Characterization, and Applications of Nanomaterials*, 1135-1152 IGI Global. <http://doi:10.4018/978-1-7998-8591-7.ch046>
3. Banerjee S., Poria S., Sutradhar G., **Sahoo P.** (2021) Understanding Fabrication and Properties of Magnesium Matrix Nanocomposites. In: Sahoo S. (eds) *Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials.* Springer, Singapore. [https://doi.org/10.1007/978-981-33-4550-8\\_9](https://doi.org/10.1007/978-981-33-4550-8_9)
4. Banerjee S., Poria S., Sutradhar G., **Sahoo P.** (2021) Mg-WC Nanocomposites—Recent Advances and Perspectives. In: Sahoo S. (eds) *Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials.* Springer, Singapore. [https://doi.org/10.1007/978-981-33-4550-8\\_8](https://doi.org/10.1007/978-981-33-4550-8_8)
5. Pal B.R., Ghosh S., **Sahoo P.** (2021) Aluminium Hybrid Composites Reinforced with SiC and Fly Ash Particles—Recent Developments. In: Sahoo S. (eds) *Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials.* Springer, Singapore. [https://doi.org/10.1007/978-981-33-4550-8\\_6](https://doi.org/10.1007/978-981-33-4550-8_6)
6. Shinde D.M., **Sahoo P.** (2021) Fabrication of Aluminium Metal Matrix Nanocomposites: An Overview. In: Sahoo S. (eds) *Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials.* Springer, Singapore. [https://doi.org/10.1007/978-981-33-4550-8\\_5](https://doi.org/10.1007/978-981-33-4550-8_5)
7. Mukhopadhyay A., Barman T.K., **Sahoo P.** (2021) High Temperature Tribology of Surface Coatings. In: Sahoo S. (eds) *Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials.* Springer, Singapore. [https://doi.org/10.1007/978-981-33-4550-8\\_2](https://doi.org/10.1007/978-981-33-4550-8_2)
8. **P Sahoo**, SK Das (2021) Tribological behavior of electroless Ni–B coating, In: *Handbook of Modern Coating Technologies*, Elsevier, 309-354.
9. SK Das, S Gain, **P Sahoo** (2021) Friction Stir Welding, In: *Welding Technology, Series: Materials Forming, Machining and Tribology* (Ed. JP Davim), Springer. 1-39 <https://doi.org/10.1007/978-3-030-6>
10. Naik P., Pradhan S., Acharya S.K., **Sahoo P.** (2021) Wear Behavior of Orange Peel Reinforced Epoxy Composite. In: Pant P., Mishra S.K., Mishra P.C. (eds) *Advances in Mechanical Processing and Design. Lecture Notes in Mechanical Engineering.* Springer, Singapore. [https://doi.org/10.1007/978-981-15-7779-6\\_57](https://doi.org/10.1007/978-981-15-7779-6_57)

## Annual Report 2020-2021

11. **P Sahoo**, SK Das (2020) Emerging trends in additive and subtractive manufacturing, In: Additive and subtractive manufacturing (Ed. JP Davim), DeGruyter, 1-58

### **Prof. Anirban Mitra**

1. Hareram Lohar, **Anirban Mitra**, and Sarmila Sahoo, “Effect of Boundary Conditions and Taper Patterns on Geometrically Nonlinear Frequency Response of Axially Graded Beams on Elastic Foundation”, *Handbook of Research on Advancements in Manufacturing, Materials, and Mechanical Engineering*, Chapter 6, pp. 110 – 140, IGI Global, ISBN: 1799849392, 2020. DOI: 10.4018/978-1-7998-4939-1.ch006.
2. Tamonash Jana, **Anirban Mitra**, Prasanta Sahoo, “Static and Dynamic Analysis of Deformable Fractal Surface in Contact with Rigid Flat”, *Handbook of Research on Advancements in Manufacturing, Materials, and Mechanical Engineering*, Chapter 7, pp. 141 – 174, IGI Global, ISBN: 1799849392, 2020. DOI: 10.4018/978-1-7998-4939-1.ch007.
3. Hareram Lohar, **Anirban Mitra**, and Sarmila Sahoo, “Dynamics of Axially Functionally Graded Timoshenko Beams on Linear Elastic Foundation”, *Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials*, Chapter 10, pp. 253 – 285, Springer, Singapore, ISBN 978-981-334-550-8, 2021. DOI: [https://doi.org/10.1007/978-981-33-4550-8\\_10](https://doi.org/10.1007/978-981-33-4550-8_10).

### **Prof. Prokash Chandra Roy**

1. Sampad Kumar Das and **P. C. Roy** 2021, Thermodynamic analysis of downdraft biomass gasifier to study the Effect of temperature using different feedstock, *IOP Conf. Ser.: Mater. Sci. Eng.* **1080** 012032, doi:10.1088/1757-899X/1080/1/012032
2. A. Dutta, Sampad Kumar Das and **P. C. Roy**, 2021, Experimental investigation on a downdraft biomass gasifier using tree waste and sawdust pellet, *IOP Conf. Series: Materials Science and Engineering* **1080** (2021) 012033 doi:10.1088/1757-899X/1080/1/012033
3. Abhishek Samanta, Anindya Adhikary and **Prokash C Roy**, Waste Cooking Oil Biodiesel: Its Testing, Performance and Emission in an Unaltered Diesel Engine, *IOP Conf. Series: Materials Science and Engineering* **1080** (2021) 012034 doi:10.1088/1757-899X/1080/1/012034.

### **Prof. Hareram Lohar**

1. **Hareram Lohar**, Anirban Mitra, and Sarmila Sahoo, “Dynamics of Axially Functionally Graded Timoshenko Beams on Linear Elastic Foundation”, *Recent Advances in Layered Materials and Structures. Materials Horizons: From Nature to Nanomaterials*, Chapter 10, pp. 253 – 285, Springer, Singapore, ISBN 978-981-334-550-8, 2021. DOI: [https://doi.org/10.1007/978-981-33-4550-8\\_10](https://doi.org/10.1007/978-981-33-4550-8_10).
2. **Hareram Lohar**, Anirban Mitra, and Sarmila Sahoo, “Effect of Boundary Conditions and Taper Patterns on Geometrically Nonlinear Frequency Response of Axially Graded Beams on Elastic Foundation”, *Handbook of Research on Advancements in Manufacturing, Materials, and Mechanical Engineering*, Chapter 6, pp. 110 – 140, IGI Global, ISBN: 1799849392, 2020. DOI: 10.4018/978-1-7998-4939-1.ch006.

### **Prof. Sandip Sarkar**

1. C. Mondal, S. Sarkar, and N. K. Manna. Forced Convective Wake Dynamics Past a Semicircular Cylinder at Incidence with a Downstream Circular Cylinder in Crossflow. In Theoretical, Computational, and Experimental Solutions to Thermo-Fluid Systems, ISBN 978-981-33-4164-7 (print), 978-981-33-4165-4 (online), pages 93–102. Springer, Singapore, 2021.
2. A. H. Middy, A. Samanta, C. Mondal, S. Sarkar, and N. K. Manna. Unsteady Wake Dynamics Past a Triangular Cylinder at Incidence with a Downstream Semi-circular Cylinder at  $Re = 100$ . In Theoretical, Computational, and Experimental Solutions to Thermo-Fluid Systems, ISBN 978-981-33-4164-7 (print), 978-981-33-4165-4 (online), pages 493–505. Springer, Singapore, 2021.
3. B.D. Das, R. Sardar, S. Sarkar, and N. K. Manna. Compressible Flow Through Convergent-Divergent Nozzle. In Theoretical, Computational, and Experimental Solutions to Thermo-Fluid Systems, ISBN 978-981-33-4164-7 (print), 978-981-33-4165-4 (online), pages 345–353. Springer, Singapore, 2021.

## Annual Report 2020-2021

4. S. Banerjee, S. Banik, C. Mondal, S. Sarkar, and N. K. Manna. Mixed Convective Power-Law Fluid Flow and Heat Transfer Characteristics Past a Semi-circular Cylinder Mounted with a Splitter Plate. In *Theoretical, Computational, and Experimental Solutions to Thermo-Fluid Systems*, ISBN 978-981-33-4164-7 (print), 978-981-33-4165-4 (online), pages 219–226. Springer, Singapore, 2021.

### Prof. Nirmal Manna

1. Biswas, N., Samanta, R., Datta, A., and Manna, N. K. (2021). MHD convection in cavity under partially applied magnetic fields. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, doi: 10.1007/978-981-16-2347-9\_11, eBook ISBN 978-981-16-2347-9.
2. Datta, A., Biswas, N. and Manna, N. K. (2021). Magneto-convective heat transfer in a cavity under partial magnetic fields. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, doi: 10.1007/978-981-16-2347-9\_11, eBook ISBN 978-981-16-2347-9.
3. Mondal, C., Biswas, N. and Manna, N. K. (2021). MHD Thermal Convection of Nanofluid Saturated Porous Cavity Heated Linearly. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, Springer Publications. doi: doi.org/10.1007/978-981-16-2347-9\_4, eBook ISBN 978-981-16-2347-9.
4. Biswas, N., Datta, A., Manna, N. K. (2021). Electro-thermal Convection in a Rectangular Enclosure. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, Springer Publications. doi: doi.org/10.1007/978-981-16-2347-9\_4, eBook ISBN 978-981-33-4165-4.

### Prof. Nipu Modak

1. Sudeshna Roy, **Nipu Modak** & Pranab K Dan, Determinants of Sustainable New Product Development and Their Impacts in Manufacturing Companies, Waste Management as Economic Industry Towards Circular Economy (pp. 37-47), Springer, 978-981-15-1619-1, 2020.
2. Sudeshna Roy, **Nipu Modak** & Pranab K Dan, Role of Product Development Process for NPD Success in Indian Manufacturing Industries: Quality, Cost and Technological Aspects, *Advances in Simulation, Product Design and Development; Proceedings of AIMTDR 2018*, Springer, doi.org/10.1007/978-981-32-9487-5, 2020.
3. Sudeshna Roy, **Nipu Modak** & Pranab K Dan, Impact of Collaborative Drivers of NPD on Quality Cost and Customer Satisfaction, *Advances in Materials and Manufacturing Engineering, Proceedings of ICAMME 2019*, Springer, doi.org/10.1007/978-981-15-1307-7, 2020.

## D. Research Articles Published in Conference Proceedings during the year: (Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

### Prof. Nirmal Manna

1. Chatterjee, D., Biswas, N., Manna, N. K. & Mondal, D. K. (2021). Effect of bottom wall curvature on thermal convection of air/nanofluid in a differentially heated cavity subjected to a magnetic field. 2<sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021–055, India, pp. 1–10.
2. Maitra, S., Biswas, N., Manna, N. K., & Mondal, D. K. (2021). Curvature effect of heated sidewall during heat transport of different Prandtl number fluids in a square enclosure in the presence of a magnetic field. 2<sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, 7-9 February, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021–046, India, pp. 1–10.
3. Sen, K., Biswas, N., Sarkar, S., & Manna, N. K. (2021). Transport phenomena in a double driven cavity involving buoyancy, magnetic field and nanofluid. 2<sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, 7-9 February, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021–044, India, pp. 1–10.

## Annual Report 2020-2021

- Mondal, M. K., Biswas, N. Datta, A., & Manna, N. K. (2021). Effects of thermal aspect ratio on MHD thermal convection of Cu-water nanofluid saturated porous cavity, 2<sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICRAME 2021, 7-9 February, 2021, NIT Silchar, Assam, India, Paper no. ICRAME 2021-024, India, pp. 1-10.
- Mondal, M. K., Datta, A., Biswas, N. & Manna, N. K. (2020). MHD mixed convective heat transfer in a partially heated partially driven cavity filled with Cu-water nanofluid saturated porous media, Proceedings of the 6<sup>th</sup> International and 43<sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power (FMFP 2020), 9-11 December, 2020, IIT Guwahati, Guwahati-781039, Assam, India, Paper no. FMFP2020-011, pp. 1-6.
- Biswas, N., Datta, A., Mondal, D. K., & Manna, N. K. (2021). Unsteady development of Marangoni convection in a sidewall moving open cavity. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012024, pp. 1-8.
- Mondal, M. K., Biswas, N., Sarkar, U. K., Manna, N. K., & Mondal, D. K. (2021). Effect of partial wall motion on MHD mixed convection heat transfer undergoing in a porous cavity filled with Cu-water nanofluid with a centrally mounted heat source. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012025, pp. 1-8.
- Saha, A., Ghosh, K., & Manna, N. K. (2021, February). Analysis of nanofluid based natural convection in a square cavity applying corner heating and cooling. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), In *IOP Conference Series: Materials Science and Engineering* (Vol. 1080, No. 1, p. 012049). IOP Publishing.
- Maitra, S., Manna, N. K., Mondal, D. K. & Biswas, N. (2021). Thermal convection in an inclined cavity under the influence of partial magnetic field. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012029, pp. 1-8.
- Chatterjee, D., Manna, N. K., Mondal, D. K. & Biswas, N. (2021). Effect of partial magnetic field on thermo gravitational convection in an inclined cavity. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012030, pp. 1-9.
- Ghosh, A., Sen, D., Manna, N. K., & Sarkar, S. (2021, February). Multiphase dynamics in a three dimensional branching network. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021). In *IOP Conference Series: Materials Science and Engineering* (Vol. 1080, No. 1, p. 012041). IOP Publishing.
- Mondal, C., Biswas, N., Manna, N. K. (2020). MHD convection of nanofluid saturated porous cavity heated linearly. 1<sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), December 19-20, 2020, India, Paper No. TF-1577, pp. 1-6.
- Biswas, N., Samanta, R., Datta, A. & Manna, N. K. (2020). MHD convection in cavity under uniform heating with partially applied magnetic fields. 1<sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), 19-20 December, 2020, India, Paper No. TF-158, pp. 1-6.
- Datta, A., Biswas, N., & Manna, N. K. (2020). Magneto-convective heat transfer in a cavity under partial magnetic fields. 1<sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), 19-20 December, 2020, India, Paper No. TF-152, pp. 1-6.

### **Prof. Sadhan Kumar Ghosh:**

- Anaya Ghosh, **Sadhan Kumar Ghosh**, Jyoti Prakas Sarkar, Bimal Das, (2020), A critical analysis of the impacts of COVID-19 on the Indian economy and ecosystems and opportunities for circular economy strategies, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during 2-7 December, 2020, Jadavpur University by ISWMAW.
- Jyothilakshmi. R, Sumangala Patil, Hemanth Kumar. K. J, **Sadhan Kumar Ghosh**, Sandya Jayakumar, A Study of the Processes, Parameters, and Optimization of Anaerobic Digestion for Food

## Annual Report 2020-2021

- Waste, Proceedings of the 10<sup>th</sup> IconSWM-CE, during 2-7 December,2020, Jadavpur University by ISWMAW.
3. Veeresh Kumargouda, Dr. Jyothilakshmi. R, Sumanagala Patil, Sandhya Jayakumar, **Sadhan Kumar Ghosh,**” Utilization of food Processing waste for Energy Generation”, The Journal of solid waste Technology and Management. Page No 190-195, ISSN 1091-8043, Widener University, USA, 2020.
  4. Bindu Malla Thakuri, **Sadhan Kumar Ghosh,** Sun Jin Yun, (2020), Waste to energy as an alternative energy source for waste management in Nepal, Proceedings of the 10<sup>th</sup> IconSWM-CE, during 2-7 December, 2020, Jadavpur University by ISWMAW
  5. Abhijit Hazra, Saikat Das, Naresh Chandra Murmu, **Sadhan Kumar Ghosh,** Priyabrata Banerjee, An environmentally friendly process pathway for safe disposal of paddy stubble, Proceedings of the 10<sup>th</sup> IconSWM-CE, during 2-7 December,2020, Jadavpur University by ISWMAW .
  6. Abhijit Hazra, Priyabrata Banerjee, **Sadhan Kumar Ghosh,** Harish Hirani, (2020), Fluid catalytic cracking catalyst driven production of bio fuel from waste plastic pyrolysis oil: A sustainable way of Waste Valorization, Proceedings of the 10<sup>th</sup> IconSWM-CE, during 2-7 December, 2020, Jadavpur University by ISWMAW .
  7. **Sadhan K Ghosh,** Tejashwi rana, (2020), Co-processing of Non-Recyclable plastic waste in cement kiln, Proceedings of the 10<sup>th</sup> IconSWM-CE, during 2-7 December,2020, Jadavpur University by ISWMAW .
  8. Sourya Subhra Chakraborty, **Sadhan K. Ghosh , (2020),** Survey methodologies to determine the supply chain & inventory of non-recyclable plastic wastes in landfill and other sectors towards closing the loop through co-processing, Proceedings of the 10<sup>th</sup> IconSWM-CE, during 2-7 December, 2020, Jadavpur University by ISWMAW.
  9. Krishanu Hait, **Sadhan K Ghosh,** (2020), Review paper on a business model of a wastewater treatment plant in India, Proceedings of the 10<sup>th</sup> IconSWM-CE, during 2-7 December,2020, Jadavpur University by ISWMAW.
  10. Tanya Gupta, **Sadhan K Ghosh, (2020),** A Review of Macrophytes as Phyto- Filters: for Waste Water Treatment, 10<sup>th</sup> IconSWM-CE, during 2-7 December, 2020, Jadavpur University by ISWMAW

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Nirmal K. Manna</b>	Ali J. Chamkha	Kuwait College of Science and Technology, Doha District, Kuwait	Joint research	Since 2020
<b>Nirmal K. Manna</b>	Rama Subba Reddy Gorla	Air Force Institute of Technology, Dayton, Ohio – 45433, USA	Joint research	Since 2020
<b>Nirmal K. Manna</b>	Hakan F. Öztop	Fırat University, Elazığ–23119, Turkey	Joint research	Since 2020

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### B. Books/Monographs Edited :

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
-----------------------	-----------------------------	-----------------------	---------------	------



### Annual Report 2020-2021

Prof Sadhan K Ghosh, Associate Editor	International Journal of Materials Cycle and Waste Management			
Prof Sadhan K Ghosh, Editor	Circular Economy:Recent Trends in Global Perspective, 2021, contribution from 14 countries on Circular Economy, to be published December 2021, Springer Nature Publication;			
Prof Sadhan K Ghosh	Circular Economy in Construction Industries, to be published December 2021	Talor & Francis Publisher, UK		
Prof Sadhan K Ghosh	Biomethane through Resource Circularity: to be published December 2021	Talor & Francis Publisher, UK		
Prof Sadhan K Ghosh	Proceedings of 10th IconSWM2020 , in December 2020, ISWMAW			

**C. Seminar/Workshop/Conference/Symposium Organized:  
(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)**

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
10th International Conference on Solid Waste Management, 10 th IconSWM 2019 at	Prof. Sadhan K Ghosh		JU, online, by International Society of Waste Management, Air and Water (ISWMAW),	
WED (World Environment Day) Celebration Workshop	Prof. Sadhan K Ghosh		Jadavpur University.	5 June 2020, seminar

### Annual Report 2020-2021

Research Review Meeting and Workshop, GCRF ESRC, UK seed corn funded research project, Social Wellbeing and Mental Health issues of employees in SMEs	Prof. Sadhan K Ghosh		Centre for Sustainable Development and Resource Efficiency Management, Jadavpur University, Kolkata, India online	24 July, 2020
Royal Academy of Engineering (RAE), UK funded research project , Circular Economy Adoption in SMEs in India and the UK	Prof. Sadhan K Ghosh		Centre for Sustainable Development and Resource Efficiency Management, Jadavpur University, Kolkata, India online.	21 August, 2020
Webinar on International Seminar thru Virtual platform : "Sustainable development & Low Carbon Technology - Theory, Research, Applications and Business"	Prof. Sadhan K Ghosh		Virtual platform	10 November, 2020
Webinar on "European Union - DBT Funded Wastewater Recycling : INDIA H2O Project"	Prof. Sadhan K Ghosh			16 October, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Sudipta De</b>	Key note Speaker	QIP sponsored short term course on Recent Advances in Affordable & Clean Energy (RAACE-2020): A Roadmap to SDG 7	Department of Electrical & Instrumentation Engineering, SantLongowal Institute of Engineering & Technology (virtual mode)	14-19 September, 2020

**Annual Report 2020-2021**

<b>Anirban Mitra</b>	Invited Speaker	Basic Concepts of Machine Design and Its Future Scope	Organized by JLD College of Engineering and Management [Held Online over Zoom Platform]	29 July, 2020
<b>Sadhan K. Ghosh</b>		USA : Delivered the Opening Plenary Speech in Annapolis, Maryland, Washington DC, on “Pentangular Cooperation in promoting 3R and Circular Economy, in the 35 <sup>th</sup> International Conference on Solid Waste Technology and Management, by Widener University, USA	USA	09-12 April, 2020.
<b>Sadhan K. Ghosh</b>		Delivered plenary speech in the 14 th ICWMT, organized by Tsinghua University,	China	24 May, 2020 online.
<b>Sadhan K. Ghosh</b>		IconSWM, Kolkata: Delivered the Keynote Speech at the WED Seminar on 5 <sup>th</sup> June, 2020.	India	June, 2020 on virtual platform.
<b>Sadhan K. Ghosh</b>		IconSWM, Kolkata: Delivered the Keynote Speech at the WED Seminar on 12 <sup>th</sup> June, 2020	India	June, 2020 on virtual platform.
<b>Sadhan K. Ghosh</b>		Delivered the Keynote speech in the National Webinar on “Biomedical Waste Impact during Pandemic Covid” 12 th June 2020 on virtual platform organized by Centre for Centre for Environmental Education and	ANU, Guntur, AP, India	12 June, 2020

**Annual Report 2020-2021**

		Ecological Development (CEED), A.P., INDIA, Department of Environmental Sciences, ANU ,  World Environment Organization (WEO) and PRKRUTHI – The Environmental Club of Lakireddy Balireddy College of the Engineering,		
<b>Sadhan K. Ghosh</b>		Keynote speech in the “Biodiversity and Environmental Protection during Pandemic Outbreak of Covid 19” held on 5th June, 2020 online attended by 27 countries	Organized by ISWMAW & CSD&REM, JU	5 June, 2020
<b>Sadhan K. Ghosh</b>		Keynote speech in the IconSWM-India-Nigeria Connect Webinar on “Waste Management and Circular Economy, organized by Covenant University Nigeria and other organizations	Nigeria:	30 September, 2020
<b>Sadhan K. Ghosh</b>		Keynote speech in the IconSWM-India-Philippines Connect Webinar on “Resource Circulation and Waste Management under the Pandemic COVID-19” organized by Central Bicol State Agricultural University, and Ecosystems Research and Development Bureau, Philippines	Philippines:	10 September 2020

**Annual Report 2020-2021**

		and other organizations.		
<b>Sadhan K. Ghosh</b>		Keynote speech in IconSWM- Asia Pacific Connect Webinar,	India	30 September, 2020
<b>Sadhan K. Ghosh</b>		Keynote speech in the IconSWM-India– Vietnam Connect Webinar on“Circular Economy and Waste Management under the Pandemic COVID-19”;	organized by ISPONRE, Hanoi, Vietnam.	18 September, 2020
<b>Sadhan K. Ghosh</b>		10 <sup>th</sup> IconSWM-CE 2020 held online at JU, Dec 2-7, 2020.	India	2-7 December, 2020
<b>Sadhan K. Ghosh</b>		Chaired the Technical Session in the 35 <sup>th</sup> International Conference on Solid Waste Technology and Management, Philadelphia, Widener University, USA held in April, 2020	Annapolis, Maryland, Washington DC USA	11 April, 2020
<b>Sadhan K. Ghosh</b>		Chaired the International Seminar thru Virtual platform : "Sustainable development & Low Carbon Technology - Theory, Research, Applications and Business"; 10th November, 2020;	Kolkata, India	10 November, 2020
<b>Sadhan K. Ghosh</b>		Chaired, Webinar on "European Union - DBT Funded Wastewater Recycling : INDIA H2O Project" , 16th October, 2020,	Kolkata, India	16 October, 2020

## Annual Report 2020-2021

### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
<b>Hareram Lohar</b>	TEQIP III sponsored online short-term course on “Noise and Vibration Monitoring of Mechanical Systems”	IIT Indore	29 -31 October, 2020
<b>Hareram Lohar</b>	TEQIP III sponsored online short- term course on “ Industrial Noise and Vibration Control ”	IIT Indore	26 -28 November, 2020
<b>Hareram Lohar</b>	AICTE, New Delhi sponsored online Short Term Training Programme (STTP) Series on RECENT ADVANCES IN TRIBOLOGY AND SURFACE ENGINEERING: Series of 4 – Introduction to Special Topics like Biomimetics and Tribology in Industry	Saintgits College of Engineering, Kottayam	12-17 October, 2020
<b>Prof. Sadhan Kumar Ghosh</b>	35 <sup>th</sup> International Conference on Solid Waste Technology and Management, Philadelphia, Widener University, USA.	Annapolis, Maryland, Washington DC	April 2020
<b>Prof. Sadhan Kumar Ghosh</b>	10 <sup>th</sup> International Conference on Solid Waste Management, 10 <sup>th</sup> IconSWM 2020 at JU, online, by International Society of Waste Management, Air and Water (ISWMAW), CQMS,	Jadavpur University, IISc Bangalore and UNCRD	2-7 December, 2020
<b>Prof. Sadhan Kumar Ghosh</b>	14 <sup>th</sup> ICWMT	Tsinghua University	May 24, 2020 online

### 6. Major Achievements of the Department during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Prasanta Sahoo	INSA Teacher Award	INSA	New Delhi

#### D. Any Other Major Achievements:

##### **Prof. Sudipta De:**

Prof. Sudipta De Editorial Board Member, Clean Technologies and Environmental Policy, Springer (Impact Factor 3.636)

##### **Prof. Prasanta Sahoo:**

Prof. Prasanta Sahoo has been ranked among top 2% global scientists in Stanford University ranking 2020/ 2021.

## Annual Report 2020-2021

### **Prof. Sadhan Kumar Ghosh:**

1. **Authored the first ever published book on Co-processing, entitled, Sustainable Management of Waste through Co-processing**, released in November 2021 by Springer Nature.
  2. **Recognition as International Expert on Circular Economy by UNCRD, DESA : Invited to act as the expert in Preparation of a Report on State of the 3R and Circular in the Asia Pacific” to be completed by December 2023.**
  3. **Selected as the Chairman**, 11<sup>th</sup> International Conference on Sustainable Waste Management and IPLA Global Forum 2021 involving 45 countries in December 2021. on virtual platform.
  4. Four Books by Prof. Sadhan Kumar Ghosh of mechanical engineering department have been published *within 30 days during 21<sup>st</sup> November – 21<sup>st</sup> December, 2021*. Books are entitled, 1) ***Sustainable Management of Wastes through Co-processing***, authored by Prof. Sadhan Kumar Ghosh, Dr. K. H. Karstensen, Norway and Mr. U. V. Parlikar; published by Springer Nature and the first book on the subject ever published in the worlds, 2) ***Circular Economy: Recent Trends in Global Perspective***, Springer Nature; Editors: Sadhan K Ghosh, India & Sannidhya K Ghosh, USA; Published by Taylor & Francis Ltd, UK; 3) ***Biomethane through Resource Circularity: Research, Technology and Practices***; by Taylor & Francis ; Editors: Sadhan Kumar Ghosh , M. Nelles, Germany , H. N. Chanakya & D. C. Baruah; and 4) ***Circular Economy in Construction Industry***; Publisher Taylor & Francis Ltd, UK; Editors: Sadhan Kumar Ghosh, Sannidhya Kumar Ghosh, USA, B. G. Mohapatra and R. L. Mersky, USA. All books are available online. The books have been released in 11th IconSWM-CE & IPLA Global Forum 2021 during Dec 1-4.
  5. Prof. Sadhan Kumar Ghosh of mechanical engineering department, organised the ***11th IconSWM-CE & IPLA Global Forum 2021*** (11<sup>th</sup> International Conference on sustainable Waste Management and Circular Economy & IPL Global Forum), during December 1 to 4, 2021 using online platform from Jadavpur University, which was ***attended by experts and delegates from Forty-Eight (48) countries***. Prof. Ghosh is the Founder and the Chairman of the international platform, IconSWM-CE, being the biggest international platform in India on Waste Management.
  6. Prof. Sadhan Kumar Ghosh, of mechanical engineering department were invited and delivered keynote speech and plenary speech in many countries, namely, Widener University USA, Tsinghua University China, Obida University Hungary, Chittagong University of Engg & Tech. (CUET), Bangladesh, Central Environmental Authority, Sri Lanka, Centre for East Asian Studies & ASEAN Indonesia, Covenant University Nigeria, Central Bicol State Agricultural University Philippines, ISPONRE Vietnam, The Research and Technologies Centre of Energy (CRTE), Tunisia, AND UNCRD, Japan during April 2021 onwards, using virtual platforms.
  7. Prof. Sadhan Kumar Ghosh, of mechanical engineering department has been assigned the responsibility of authoring Chapter as International Expert on Bio Medical Waste Management in the 2<sup>nd</sup> state of 3R & Circular Economy to be published by the UNCRD UN/DESA and the Ministry of Environment, Japan to be published in 2023.
  8. Recognition by UNCRD :Prof Sadhan K Ghosh as the President of the International Society of Waste Management, Air and Water (ISWMAW) has been given the responsibility of IPLA Global Secretariat at ISWMAW from November 2020 by UNCRD/UN DESA. The Global Secretariat was stationed at Russian Federation for last couple of years. IPLA head office being at UNCRD, Japan.
7. **Extension Activities of the Department / School during the year:**
- A. **Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

### **Prof. Sudipta De**

1. Prof. Sudipta De: Key Resource Person, Industry-Academia Connect Task Force, The Bengal Chamber of Commerce and Industry, Kolkata
2. Prof. Sudipta De: Member, Energy and Environment Committee, The Bengal Chamber of Commerce and Industry, Kolkata
3. Prof. Sudipta De: Member, Education Committee, The Bengal Chamber of Commerce and Industry, Kolkata

## Annual Report 2020-2021

4. Prof. Sudipta De: Member, State Committee (West Bengal) of Mechanical Engineering of The Institution of Engineers, India

### B. Activities for the Society:

#### Prof. Sudipta De

Prof. Sudipta De: Expert Member, High Power Committee for Energy Efficiency of Public Utilities, Kolkata Corporation

### 8. Students Progression during the year:

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
GATE	19
CAT	02
GRE	01
TOFEL	02
Civil Services	01
Any Other	09

## METALLURGICAL AND MATERIAL ENGINEERING

Phone: 033-2457-2325/2265

H.O.D : Amrita Kundu

E-mail: hodmetal@jadavpuruniversity.in

### 1. Vision and Mission of the Department :

#### A. Vision:

To achieve global excellence in Metallurgical and Materials Engineering education and research.  
To be the destination for students, researchers and faculties for the pursuit of academic excellence, technical innovation, and industrial professionals for knowledge based resources.

#### B. Mission:

- To promote quality education and research in the frontier technological areas for catering the industrial requirements and to accept the challenges of changing global technological and societal needs.
- To interact and collaborate with national and international institutes, universities and industries for continuous development and growth in academics and research, and participate in the national mission programs.
- To create academic and research ambience and infrastructure for independent and free thinking amongst students and researchers for scientific and technological innovations.
- To maintain an atmosphere for promotion of human values, ethics and environmental security.



## Annual Report 2020-2021

### 2. Academic Activities:

#### A. Programmes offered :

Name of the Programme	Duration (Years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.E degree in Metallurgical Engg.	4 Years	1 <sup>st</sup> year	40
		2 <sup>nd</sup> year	50
		3 <sup>rd</sup> year	35
		4 <sup>th</sup> year	36
M.E in Metallurgical Engg. (Industrial Metallurgy)	2 Years	1 <sup>st</sup> Year	06
M.Tech in Material Engg.	2 Years	1 <sup>st</sup> Year	12
Ph.D Course Work in Metallurgical Engg.		1 <sup>st</sup> Year	08

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
04	01	03	06

### 4. Area of Research Activities: (Broad Areas)

A. Thermodynamics and Kinetics, Chemical/Extractive Metallurgy, Melting & Solidification, Materials Processing and Characterization, Phase transformation, Mechanical Behaviour of Materials, Deformation Fatigue & Fracture of Materials, Creep, Microstructure - Crystallographic Texture and Mechanical Property Correlation, Coating, Wear, Electrochemistry and Corrosion, Welding and Joining, Transport Phenomena, Archaeo Metallurgy, Waste Utilization. Composites, Mineral Processing, Nanostructured Materials, Ceramic Materials, Fuel Cell and Battery, Electrochemical Energy Synthesis

#### B. Major Research Project:

Title of the Project	Type (Departmental/ Individual)	Name of the Principal Investigator	Funding Agency	Duration
Influence of Annealing and Aging Treatments on Tensile and Low Cycle Fatigue Deformation Behaviour of Low Density Steel	Individual	Dr. Amrita Kundu	SERB (GOI) (Rs.46,73,518.00)	2021-2024

## Annual Report 2020-2021

### C. Doctoral Research Projects:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
1	6

### D. Research Articles Published in Journals during the year (International/National/ National Peer-reviewed Journals (Name of authors, Title of article, Name of the journal, Volume No., Page No./Article No., Year of publication))

#### Prof. Subir Paul

1. Subir Paul and Gaurav Kumar, Electrochemical Conversion of Air Pollutants to Electrical Energy, Current Alternative Energy Bentham Publication , accepted June 2021, in print.
2. Subir Paul, Prashant Kumar and Sarthak Harnathka, Electrochemical Conversion of Furnace Exhaust CO<sub>2</sub> Gas of Iron Ore Reduction to Ethanol in Fuel Cell for Sustainable Iron Making, Journal of the Institution of Engineer Series D, Material Science Divs. Accepted , June 2021.
3. Subir Paul and Amit Mondal, Development of Graphene Based Ni-NiO Energetic Catalytic Materials For Electro Oxidation of Glucose to Clean Electrochemical Energy, Nanomaterials and Energy Journal , accepted in November 2020.

#### Prof. Pravash Chandra Chakraborti:-

1. S. R. Das, T. Riaz, S. Shyamal, **P.C.Chakraborti** and P. Sahu, A quantitative assessment on the contribution of various dislocation substructures to flow stress in a fine-grain high-Mn steel, Materials Letters, 300, 130216, 2021.
2. S. K. Chandra, R. Sarkar, M. K. Patel, P. S. De, J. K. Mahato, **P. C. Chakraborti** and S. K. Ray, Characterization of Ductile Crack Growth Resistance Behaviour of Interstitial-Free Steel Sheet using Energy Dissipation Rate Parameter, Theoretical and Applied Fracture Mechanics, 114, 102994, 2021.
3. A. Gandhi, A. Kundu, A. Sarkar, J. K. Mahato and **P.C.Chakraborti**, Effect of Laser Pulse Duration on Tensile and Electrochemical Behavior of Laser-Welded Dual-Phase Steel, Journal of Materials Engineering and Performance, 30(6), pp. 4263-4281, 2021.
4. S. R. Das, S. Shyamal, T. Sahu, J. I. Komi, **P. C. Chakraborti**, D. A. Porter, L.P. Karjalainen and P. Sahu, On the mechanism of cross-slip induced dislocation substructure formation in an high-Mn steel, Materialia, 15, 101042, 2021.
5. S. K. Chandra, R. Sarkar, Sukalpa Choudhury, Mrinmoy Jana, P. S. De, **P. C. Chakraborti** and S. K. Ray: Determination of  $\eta_p$  factor for clamped SENT thin sheet specimens of an Interstitial Free steel; International Journal of Fracture, 227(2), pp. 137-152, 2021.
6. S. Shyamal, M. Ghiasabadi Farahani, T. Allam, A.S. Hamada, C. Haase, J.I. Kömi, **P.C. Chakraborti** and P. Sahu: Activation of a hybrid twinning mechanism in a Cr-Ni-Si-V-N medium manganese austenitic steel containing precipitates, Scripta Materialia, 192, pp. 83-88, 2021.
7. T. Riaz, S.R. Das, T. Sahu, **P.C. Chakraborti** and P. Sahu: Dislocation substructures in tensile deformed Fe–Mn–Al–C steel, materials letters, 282, 128691, 2021.
8. S.K. Chandra, R. Sarkar, A.D. Bhowmick, P.S. De, **P.C. Chakraborti** and S.K. Ray, Evaluation of ductile tearing resistance of an interstitial free steel sheet using SENT specimens, Engineering Fracture Mechanics, 2(4),045029, 2020.
9. P.P. Sarkar and **P.C. Chakraborti**, Uniaxial Ratcheting Behavior of a Weather-Resistant Rail Steel: Effect of Mean Stress and Stress Amplitude, Journal of Materials Engineering and Performance, 29(5), pp. 2936-2946, 2020.
10. Shreya Mukherjee, Amrita Kundu, Partha Sarathi De, Jayanta Kumar Mahato, **P. C. Chakraborti**, M. Shome and D. Bhattacharjee, Insitu investigation of tensile deformation behaviour of cold-rolled interstitial-free high-strength steel in scanning electron microscope, Materials Science & Engineering A 776,139029, 2020.

## Annual Report 2020-2021

11. S. K. Chandra, R. Sarkar, A. D. Bhowmick, P. S. De, **P. C. Chakraborti** and S. K. Ray, Crack tip opening angle (CTOA) and  $\delta_5$  measurements on SENT and DENT specimens of a thin interstitial-free steel sheet, *Engineering Fracture Mechanics*, 225, 106861, 2020.
12. Jayanta Kumar Mahato, Partha Sarathi De, Kumar Aniket Anand, Amrita Kundu and **P.C. Chakraborti**, *Materials Today: Proceedings*, 32, 379–384, 2020.

### **Prof. Akshay Kumar Pramanick:-**

1. **Sourav Debnath**, Akshay Kumar Pramanick, “Comparative Study between Silica gel-Aluminium & Crystalline silica-Aluminium Composites Developed through P/M Route”, *Proceedings of the IEEE (ISSN 0018-9219)*, *IEEE Xplore*, pp, 193-197, August 2020. Doi: 10.1109/VLSIDCS47293.2020.9179901
2. **Sourav Debnath**, Rajib Gupta, Akshay Kumar Pramanick “Development of Aluminium Based Magnetic Composites & Study on Chemical Properties at Sea Water Environment,” *Proceedings of the IEEE (ISSN 0018-9219)*, *IEEE Xplore*, pp, 1-5, August 2020. Doi: 10.1109/VLSIDCS47293.2020.9179916
3. **Sourav Debnath**, Akshay Kumar Pramanick, “Study on various Properties of Fabricated Crystalline silica-reinforced Aluminium Metal Matrix Composites”, *Ethics and Information Technology*, Springer, 2(2), pp.147-150, 2020. DOI: <http://doi.org/10.26480/etit.02.2020.147.150>
4. **Sourav Debnath**, Soumyajit Roy, Akshay Kumar Pramanick “An Exploratory Comparative Study of Fabricated Silica-Aluminium Metal Matrix Composites with Casted Aluminium-Silicon Alloys.” *JPCS-IOP Publishing (ISSN17426588)*, 1579(2020).012014, pp.1-6, Doi: 10.1088/1742-6596/1579/1/012014
5. **Sourav Debnath**, Akshay Kumar Pramanick, “In vitro Biocompatibility Study on Implantable Crystalline silica- Aluminium Metal Based Hybrid Composites.” *Lecture Notes in Bioengineering-Springer*, pp. 1-8, 2021. [https://doi.org/10.1007/978-981-33-6915-3\\_5](https://doi.org/10.1007/978-981-33-6915-3_5)
6. Sourav Debnath, Akshay Kumar Pramanick, “Evaluation of Mechanical Properties of Developed Graphite-reinforced-Aluminium Metal Based Composites,” *IOP Conf. Series: Materials Science and Engineering*, pp1-6, 1080(2021) 012018
7. Soumyajit Roy, Akshay Kumar Pramanick, Prasanta Kumar Datta, “Quality Analysis of Tribal Casting Products by TOPSIS for Different Gating System.,” *IOP Conf. Series: Materials Science and Engineering*, pp1-6, 1080(2021) 012014
8. Soumyajit Roy, Akshay Kumar Pramanick, Prasanta Kumar Datta, “Precise Filling Time Calculation of Thin Walled Investment Casting in Hot Mold, *Journal of the Brazilian Society of Mechanical Science and Engineering*,” Vol.-42, issue 10, Oct 2020, [<https://doi.org/10.1007/s40430-020-02634-6>]

### **Prof. Rajib Dey**

1. Effect of annealing on the defect-mediated Blue phosphorescence in ZnO nanocrystals, *RSC Advances*, 2021, <https://pubs.rsc.org/en/content/articlelanding/2021/ra/d0ra04766j>.
2. In vitro release kinetics study of Diallyl Disulphide entrapped into mesoporous silica matrix & evaluation of its antimicrobial activity, *Nanomedicine research journal*, 2021, [http://www.nanomedicine-rj.com/article\\_244773.html](http://www.nanomedicine-rj.com/article_244773.html).
3. The effect of alkali reaction kinetics and Strength of Blast Furnace coke, *Fuel*, 2020, <https://www.sciencedirect.com/science/article/pii/S0016236120303835#:~:text=Coke%20is%20the%20main%20reductant,as%20reductant%20in%20blast%20furnace.&text=Alkali%20elements%20p resent%20in%20coke,strength%20on%20the%20other%20hand>.

### **Dr. Amrita Kundu:-**

1. A. Kundu, D.P. Field, Influence of microstructural heterogeneity and plastic strain on geometrically necessary dislocation structure evolution in single-phase and two-phase alloys, *Materials Characterization*, Volume 170, 2020, <https://doi.org/10.1016/j.matchar.2020.110690>

## Annual Report 2020-2021

### E. Research Articles Published in Edited Volumes during the year

(Name of authors, Title of article, Title of the Book, Name of the Editors(eds.), Page No., Name of the Publisher, ISBN/ISSN NO., Year)

#### Prof. Pravash Chandra Chakraborti

Stacking fault energy on symmetric and asymmetric cyclic deformation behavior of FCC metals, Structural Integrity Assessment, Lecture Notes in Mechanical Engineering, R.V.Prakash et al. (eds.), pp. 691 – 702, Springer Nature Singapore Pte Ltd., 978-981-13-8767-8, 2020

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### A. Books /Monographs Published:

Name of the Editors(S)	Title of the Book /Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Processing, Microstructure and Properties of Engineering Alloys for Critical Applications	Prof. Pravash Chandra Chakraborti	All lectures are available in the YouTube Channel @ bhadesia123	Webinar hosted at Jadavpur University	23 March, 2021
Lecture Series (3 – day) on High Entropy Alloys by Professor Sir Harry Bhadesia, University of Cambridge UK	Prof. Pravash Chandra Chakraborti	Complete Lecture Series is available in the YouTube Channel @ bhadesia123	Online mode hosted by Jadavpur University	21 – 23 June, 2021

#### B. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Prof. Akshay Kumar Pramanick	“Development of Aluminium Based Magnetic Composites & Study on Chemical Properties at Sea Water Environment.”	2 <sup>nd</sup> International Conference on VLSI Device, Circuit and System (IEEE VLSI DCS-2020)	IEEE Electron Device MSIT Student Branch Chapter at Meghnad Saha Institute of Technology, Kolkata	18 -19 July 2020
Prof. Akshay Kumar Pramanick	“Comparative Study between Silica gel- Aluminium & Crystalline silica – Aluminium Composites Developed through P/M Route.”	2 <sup>nd</sup> International Conference on VLSI Device, Circuit and System (IEEE VLSI DCS-2020)	IEEE Electron Device MSIT Student Branch Chapter at Meghnad Saha Institute of Technology, Kolkata	18 -19 July 2020

**Annual Report 2020-2021**

<b>Prof. Akshay Kumar Pramanick</b>	“Study on Various Properties of Fabricated Crystalline silica-reinforced Aluminium Metal Matrix Composites.”	International Conference on Contemporary Issues in Computing (ICCIC-2020)	IETE, Sector V, Salt Lake, Kolkata	25 –26 July 2020
<b>Prof. Akshay Kumar Pramanick</b>	“In vitro Biocompatibility Study on Implantable Crystalline silica-Aluminium Metal Based Hybrid Composites.”	International Conference on Advances in Medical Physics and Healthcare Engineering (IEEE AMPHE 2020)	Department of Physics (in Collaboration with the School of Engineering & Technology) Adamas University, Kolkata and technical Co-sponsorship with IEEE- Kolkata Section, held at Adamas University, Kolkata	25-26 September, 2020
<b>Prof. Akshay Kumar Pramanick</b>	“Evaluation of Mechanical Properties of Developed Graphite-reinforced- Aluminium Metal Based Composites,”	3 <sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI-2021),	College of Engineering and Management, Kolaghat	5 -7 January, 2021.

**C. Any Other Seminar/Workshop/Conference/Symposium/Course attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar /Workshop/ Course</b>	<b>Place</b>	<b>Duration</b>
<b>Shilabati Hembram</b>	The Technical Webinar on the theme of Energy Conservation Opportunities And Challenges in Oil and Gas Industries	Tiruchirappalli Local Center of the Institute of Engineers (India) under the aegis of Chemical Engineering Division on 18 <sup>th</sup> March 2021	17:30hr.- 19:30hr.
<b>Md Basiruddin Sk</b>	Structural Integrity Assessment: Tool for Prediction and Prevention of Failures	NML, Jamshedpur	2 July, 2020
	“Product Development & Industrial Research -2020”	R & D, Mechanical Engineering Department, Government College of Engineering, Aurangabad	6-9 July, 2020
	“Future of Metallurgical Industries from Different Viewpoints – Post COVID Scenario”	Department of Metallurgical Engineering under School of Mines and Metallurgy, Kazi Nazrul University,	12 July, 2020

## Annual Report 2020-2021

		Asansol, West Bengal.	
	Transforming Pedagogy in India	NIT Jamshedpur	1-3 August, 2020
	Towards Materials Sustainability through Advanced Processing and Evaluation	IIT(ISM) Dhanbad, Dhanbad 826004, Jharkhand India	17-18 February, 2021
	"Processing, Microstructure and Properties of Engineering Alloys for Critical Applications"	Jadavpur University, Kolkata	23 March, 2021

### 6. Major Achievements of the Department/School/Centre during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academics/ Government/ Recognized National /International Bodies

Name of the Faculty Member	Name of the Fellowship/Award/Honour	Awarding Institute	Place
Prof. Akshay Kumar Pramanick	3 <sup>rd</sup> Best Paper Award	Adamas University, Kolkata and IEEE-Kolkata Section	Kolkata

### 7. Extension Activities of the Department during the year:

#### A. Linkages with other Institutes / Industries for internship/on-job training/ project work etc.

- 1) CSIR – National Metallurgical Laboratory, Jamshedpur
- 2) Indian Institute of Technology Kharagpur
- 3) Indian Institute of Technology Roorkee
- 4) Indian Institute of Technology Ropar
- 5) TATA Steel, Jamshedpur

## PHARMACEUTICAL TECHNOLOGY

Phone: 033-2457-2274/2455/2484

H.O.D : Prof. Kunal Roy

E-mail: hodpharmacy@jadavpuruniversity.in

### 1. Vision and Mission of the Department:

**A. Vision:** To become an eminent Institute by providing state of the art pharmaceutical education and research to improve modern health care needs and technological aspects of industries.

**B. Mission:** Inspiring young minds through innovative educational experiences in Pharmaceutical Technology.

- Advancing scientific knowledge embedded with contemporary knowledge and technical skills across the different fields of Pharmaceutical Technology.
- Building and nurturing the relationships with different members of the field including the experts in the industry and regulatory bodies to meet the existing regional and global pharmaceutical needs

## Annual Report 2020-2021

- Promoting the entrepreneurial spirit among the U.G., P.G. and research Scholars to be the next generation leaders to establish different pharmaceutical industries and to improve further the pharmaceutical education and research. Promoting innovative research in pharmaceutical technology by collaborating with national and international universities and industries in Pharmacy.
- Taking up technological challenges of the State, Nation and beyond for ensuring social security and sustainable development.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
BPharm	4	All	70
MPharm	2	All	34 for 2021
PhD	NA	NA	NA

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
13	4	9	25

### 4. Research Activities:

#### A. Areas of Research Activities :

**Field of Interest:** Pharmaceutics, Biopharmaceutics & Pharmacokinetics, Pharmaceutical Biotechnology, Hepatocarcinogenesis & chemoprevention, Antisense Technology, Diabetes and Cancer correlation, Nanotechnology, Transdermal drug delivery systems, Liposomal drug delivery system, Dental formulations. Chemoinformatics and QSAR, Molecular and pharmacology and toxicology, Traditional Medicine & Drug Discovery etc.

#### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Characterization and role in sperm egg interaction and fertilization of a sperm outer surface phosphoprotein (MPS) located at acrosomal tip	Individual	Dr.Prasanta Ghosh	CSIR RA	36 months (2019-2022)
Antibody conjugated polymeric nanoparticles containing an anticancer drug for prostate cancer therapy: in vitro and in vivo study	Individual	Ashique Al Hoque	DST-Inspire	60 months (2017-2022)

### Annual Report 2020-2021

Bioflavonoids loaded PLGA nanoparticles a novel strategy to target lung metastasis	Individual	Ramkrishna Sen	ICMR	36 months (2019-2022)
Development of peptide and aptamer conjugated polymeric nanoparticles for targeted delivery of Garcinol against colon-cancer: in vitro and in vivo study	Individual	Brahamacharry Paul	NDF scheme, AICTE	36 months (2018-2021)
Development of apigenin loaded ligand conjugated nanoliposomes to target liver cancer cell	Individual	MoumitaPauzdar	ICMR	24 months (2019-2021)
Design and development of antibody conjugated biodegradable nanoparticle containing Paclitaxel for the treatment of cancer	Individual	Iman Ehsan	ICMR	36 months (2018-2021)
Site-specific targeting of biodegradable polymeric nanoparticle for the treatment of lung cancer: an in-vitro and in-vivo approach	Individual	LeenaKumari	CSIR	36 months (2018-2021)
Development of nano-liposome containing quercetin and its derivatives for better anti-diabetic therapy	Departmental	Manisheetta Ray	Ravichandran Trust	12 months (2021-2022)
Development of antisense H-ras oligomers and investigations of their potential as new drug against liver cancer: an in vitro and in vivo studies	Individual	Prof. Biswajit Mukherjee	ICMR	36 months (2021-2024)
Fabrication and Characterization of Natural Polysaccharide Based Bio-erodible Localized Spongy Scaffold: A New Advanced Wound Care Tool.	Individual	Prof Amalesh Samanta	DRDO-LSRB	3 years
Fabrication and Characterization of Natural Polysaccharide Based Bio Erodible Localized Spongy Scaffold: A Potential Role in Augmenting Wound Healing	Individual	Prof Amalesh Samanta	West Bengal State DST	3 years



## Annual Report 2020-2021

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

Das M, Ghosh B, **Giri TK**. Enhanced floating and intragastric release of 5-Flourouracil through sesame oil entrapped gellan composite hydrogel beads. *Current Drug Therapy*. 2021;16:241-251.

Giri S, Dutta P, **Giri TK**. Inulin-based carriers for colon drug targeting. *Journal of Drug Delivery Science and Technology*. 2021;64:102595.

Mondal R, Dey D, Maity S, **Giri TK**. Recent advancement of Ionic polysaccharide-based nanoparticles for Cancer therapy. *Research Journal of Pharmacy and Technology*. 14;2021:1122-1130.

Dey M, Ghosh B, **Giri TK**. Enhanced intestinal stability and pH sensitive release of quercetin in GIT through gellan gum hydrogels. *Colloids and Surfaces B: Biointerfaces*. 2020;196:111341.

Badwaik HR, Hoque AA, Kumari L, Sakure K, Baghel M, **Giri TK**. Moringa gum and its modified form as a potential green polymer used in biomedical field. *Carbohydrate Polymer*. 2020; 249:116893.

Jilella GK, Ojha PK, Roy K, Application of QSAR for the identification of key molecular fragments and reliable predictions of effects of textile dyes on growth rate and biomass values of *Raphidocelis subcapitata*. *Aquatic Toxicol* 238C, 2021, 105925, <https://doi.org/10.1016/j.aquatox.2021.105925>

Nath A, De P, Roy K, Insilico modelling of acute toxicity of 1, 2, 4-triazole antifungal agents towards zebrafish (*Danio rerio*) embryos: Application of the Small Dataset Modeller tool. *Toxicol in vitro*, 75, 2021, no. 105205, <https://doi.org/10.1016/j.tiv.2021.105205>

Lavado GJ Baderna D, Gadaleta D, Ulte M, Roy K, Benfenati E, Ecotoxicological QSAR modeling of the acute toxicity of organic compounds to the freshwater crustacean *Thamnocephalus platyurus*. *Chemosphere*, 280, 2021, no. 130652, <https://doi.org/10.1016/j.chemosphere.2021.130652>

Chatterjee M, Roy K, Prediction of aquatic toxicity of chemical mixtures by the QSAR approach using 2D structural descriptors. *Journal of Hazardous Materials*, 408, 2021, no. 124936, <https://doi.org/10.1016/j.jhazmat.2020.124936>

De P, Roy K, QSAR and QSAAR modeling of nitroimidazole sulfonamide radiosensitizers: application of small dataset modeling. *StructChem*, 32, 2021, 631-642, <https://doi.org/10.1007/s11224-021-01734-w>

Khan PM, Lombardo A, Benfenati E, Roy K, First report on chemometric modeling of hydrolysis half-lives of organic chemicals. *Environmental Science and Pollution Research*, 28, 2021, 1627–1642, <https://doi.org/10.1007/s11356-020-10500-0>

Khan PM, Kumar V, Roy K, Insilico modeling of small molecule carboxamides as inhibitors of SARS-CoV 3CL protease: An approach towards combating COVID-19. *Comb Chem High Throughput Screen*, 2020, <http://dx.doi.org/10.2174/1386207323666200914094712> .

Kumar V, Saha A, Roy K, Insilico modeling for dual inhibition of acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) enzymes in Alzheimer's disease. *Computational Biology and Chemistry*, 88, 2020, 107355, <https://doi.org/10.1016/j.compbiolchem.2020.107355>

## Annual Report 2020-2021

De P, Roy K, QSAR modeling of PET imaging agents for the diagnosis of Parkinson's disease targeting dopamine receptor. *Theoretical Chemistry Accounts*, 139, 2020, 176, <https://doi.org/10.1007/s00214-020-02687-9>

Ojha PK, Kumar V, Roy J, Roy K, Recent advances in quantitative structure–activity relationship models of antimalarial drugs. *Expert Opin Drug Discov*, 16, 2021, 659 – 695, <https://doi.org/10.1080/17460441.2021.1866535>

Seth A, Roy K, QSAR modeling of algal low level toxicity values of different phenol and aniline derivatives using 2D descriptors. *Aquatic Toxicology*, 228, 2020, article 105627, <http://dx.doi.org/10.1016/j.aquatox.2020.105627>

Pandey S, Roy K, QSPR modeling of octanol-water partition coefficient and organic carbon normalized sorption coefficient of diverse organic chemicals using Extended Topochemical Atom (ETA) indices. *Ecotoxicology and Environmental Safety*, 208, 2021, article 111411, <http://dx.doi.org/10.1016/j.ecoenv.2020.111411>

Seth A, Ojha P, Roy K, QSAR modeling with ETA indices for cytotoxicity and enzymatic activity of diverse chemicals. *Journal of Hazardous Materials*, 394, 2020, article 122498, <http://dx.doi.org/10.1016/j.jhazmat.2020.122498>

Pandey S, Ojha P, Roy K, Exploring QSAR models for assessment of acute fish toxicity of environmental transformation products of pesticides (ETPPs). *Chemosphere*, 252, 2020, article 126508, <http://dx.doi.org/10.1016/j.chemosphere.2020.126508>

Ojha PK, Kar S, Krishna JG, Roy K, Leszczynski, Therapeutics for COVID-19: from computation to practices—where we are, where we are heading to. *Mol Divers* 25, 2021, 625-659, <http://dx.doi.org/10.1007/s11030-020-10134-x>

De P, Roy J, Bhattacharyya D, Roy K, Chemometric modeling of PET imaging agents for diagnosis of Parkinson's disease: a QSAR approach. *StructChem*, 31, 2020, 1969-1981, <http://dx.doi.org/10.1007/s11224-020-01560-6>

A pharmacological audit and advancement on the recent trend of research on Ficus benghalensis including its in vitro hepatoprotective activity Shibam Karmakar, Somnath Paul, Nripendra Madhab Biswas, **Jasmina Khanam**, Sudip Kumar Kar, *Clinical Phytoscience* 6 84 December 2020

Determination and quantitation of benzofuran, Indole and piperazine containing selective serotonin reuptake inhibitor vilazodone hydrochloride in human plasma by LC-ESI-MS/MS with an application to pharmacokinetic study under the frame work of bioequivalence study. Balaram Ghosh, Pallab Mandal, Soumya Chakraborty, Rakesh Bera, Chiranjit Saha, Sourav Poddar, Sujata Barma, **Jasmina Khanam**, Sanmoy Karmakar, Tapan Kumar Pal, *Journal of Analytical & Pharmaceutical Research*, 10, 1-12 Feb 2021.

Effects of the Preparation Technique on the Physicochemical Characteristics and Dissolution Improvement of Ketoprofen-SBE7- $\beta$ -CD Binary Inclusion Complexes, Sanjoy Kumar Das, Soumalya Chakraborty, Anindya Bose, Rajan Rajabalaya, **Jasmina Khanam**, *Colloid and Surfaces A: Physicochemical and Engineering Aspects*, 611, 125775, Feb 2021.

**Dewanjee, S.**, Vallamkondu, J., Kalra, R.S., John, A., Reddy, H.P., Kandimalla, R., Autophagy in the diabetic heart: a potential pharmacotherapeutic target in diabetic cardiomyopathy, *Ageing Research Reviews*, 68, 101338, 2021. [Impact factor: 10.895]

## Annual Report 2020-2021

Medala, V., Gollapelli, B., **Dewanjee, S.**, Ogunmokun, G., Kandimalla, R., Vallamkondu, J., Mitochondrial dysfunction, Mitophagy and dynamin-related protein 1 in Alzheimer's disease, *Journal of Neuroscience Research*, 99(4), 1120-1135, 2021. [Impact factor: 4.164]

Dua, T.K., Joardar, S., Chakraborty, P., Bhowmick, S., Saha, A., De Feo, V., **Dewanjee, S.**, Myricitrin, a glycosyloxyflavone in *Myricaesculenta* bark ameliorates diabetic nephropathy via improving glycemic status, reducing oxidative stress, and suppressing inflammation, *Molecules*, 26, 258, 2021. [Impact factor: 4.411]

Chakraborty, S., Dile, Z.Y., Chakraborty, S., Roy, S., Mukherjee, B., Besra, S.E., Dewanjee, S., Mukherjee, A., Ojha, P.K., Kumar, V., Sen, R. (2020). Aptamer-functionalized drug-nanocarrier improves hepatocellular carcinoma towards normal by targeting neoplastic hepatocytes. *Molecular Therapy Nucleic Acids*. 20, 34-49. [Impact factor: 8.886]

Dewanjee, S., Chakraborty, P., Mukherjee, B., De Feo V. (2020). Plant-based anti-diabetic nano-formulations: The emerging paradigm for effective therapy. *International Journal of Molecular Sciences*. 21, 2217; <https://doi.org/10.3390/ijms21062217> [Impact factor: 5.923]

Panda J, Satapathy BS, Mandal B, Sen R, Mukherjee B, Sarkar R, Tudu B. Anticancer potential of docetaxel-loaded cobalt ferrite nanocarrier: an in vitro study on MCF-7 and MDA-MB-231 cell lines. *Journal of Microencapsulation* 38(1):36-46 2021

Das S, Dey TK, De A, Banerjee A, Chakraborty S, Das B, Mukhopadhyay AK, Mukherjee B, Samanta A. Antimicrobial loaded gum odina-gelatin based biomimetic spongy scaffold for accelerated wound healing with complete cutaneous texture *International Journal of Pharmaceutics* 606:120892 2021

Sen R, Ganguly S, Ganguly S, Debnath MC, Chakraborty S, Mukherjee B, Chattopadhyay D. Molecular Pharmaceutics. 2021 Mar 29;18(5):1920-38. Apigenin-Loaded PLGA-DMSA Nanoparticles: A Novel Strategy to Treat Melanoma Lung Metastasis. *Molecular Pharmaceutics* 18(5):1920-38 2021

Banerjee S, Mukherjee B, Poddar MK, Dunbar GL. 2021 Mar 26. Carnosine improves aging-induced cognitive impairment and brain regional neurodegeneration in relation to the neuropathological alterations in the secondary structure of amyloid beta (A $\beta$ ). *Journal of Neurochemistry* 158(3):710-723 2021

Das S, De A, Das B, Mukherjee B, Samanta A. Development of gum odina and gelatin based antimicrobial loaded biodegradable spongy scaffold: A promising wound care tool. *Journal of Applied Polymer Science* 138(12):50057, 2021

Mal DK, Mukherjee B. Educational motivation and legislative approaches for safe and effective hand washes and hand rubs in hand health care during COVID-19 Pandemic. *Asia Pacific Journal of Public Health* 32(8):495-496, 2020

Chakraborty S, Dlie ZY, Chakraborty S, Roy S, Mukherjee B, Besra SE, Dewanjee S, Mukherjee A, Ojha PK, Kumar V, Sen R. Aptamer-Functionalized Drug Nanocarrier Improves Hepatocellular Carcinoma toward Normal by Targeting Neoplastic Hepatocytes. *Molecular Therapy- Nucleic Acids*. 5;20:34-49, 2020

DK Mal, B Mukherjee Educational Motivation and Legislative Approaches for Safe and Effective Hand Washes and Hand Rubs in Hand Health Care During COVID-19 Pandemic. *Asia Pacific Journal of Public Health* 1010539520962612, 2020

## Annual Report 2020-2021

DK Mal, B Mukherjee Personal Protective Equipment (PPE), their Standards, Donning-doffing Procedures and Challenges of Indian Drug Regulatory Authorities with the New Indian PPE Manufacturers. *AIJR Preprints*, 2020.

Ojha PK, Kumar V, Roy J, Roy K, Recent advances in Quantitative Structure-Activity Relationship models of antimalarial drugs, *Expert Opinion on Drug Discovery* (Taylor & Francis) IF: 6.098 659–695 2021

Bhatt S, Kumar V, Dogra A, Ojha PK, Wazir P, Sangwan PL, Singh G, Nandi U. Amalgamation of in-silico, in-vitro and in-vivo approach to establish glabridin as a potential CYP2E1 inhibitor. *Xenobiotica* (Taylor & Francis) IF: 1.908. 51 625-635 2021

Ojha PK, Kar S, Krishna JG, Roy K, Leszczynski J. Therapeutics for COVID-19: from computation to practices—where we are, where we are heading to. *Molecular diversity*. (Springer Nature) IF: 2.943. 25 625–659 2021

Pandey SK, Ojha PK, Roy K. Exploring QSAR models for assessment of acute fish toxicity of environmental transformation products of pesticides (ETPPs) *Chemosphere* (Elsevier) IF: 7.086 252 126508 2020

Seth A, Ojha PK, Roy K. QSAR modeling with ETA indices for cytotoxicity and enzymatic activity of diverse chemicals. *Journal of Hazardous Materials* (Elsevier) IF: 10.588 394 122498 2020

Kumar V, Ojha PK, Saha A, Roy. A Multi-layered Variable Selection Strategy for QSAR Modeling of Butyrylcholinesterase Inhibitors. *Current Topics in Medicinal Chemistry* (Bentham Science Publishers) IF: 3.295 20 1601-1627 2020

Sanjit Kr Roy, Piu Das, Anjali Mondal, Avishek Mandal, Ketousetuo Kuotsu. Design, formulation and evaluation of multiparticulate time programmed system of ramipril for pulsed release: An approach in the management of early morning surge in blood pressure. *Journal of Drug Delivery Science and Technology* 62 102344 2021

Sweet Naskar, Sanjoy Kumar Das, Suraj Sharma and Ketousetuo Kuotsu. A Review on Designing Poly (Lactic-co-glycolic Acid) Nanoparticles as Drug Delivery Systems. *Pharmaceutical Nanotechnology* 9 36-50 2021

Suraj Sharma, Sweet Naskar & Ketousetuo Kuotsu. Metronomic chemotherapy of carboplatin-loaded PEGylated MWCNTs: Synthesis, characterization and in-vitro toxicity in human breast cancer. *Carbon Letters* 30 435-447 2020

Arijit Guha, Md. Adil Shaharyar, Kazi Asraf Ali, Sanjit Kr. Roy and Ketousetuo Kuotsu. Smart and Intelligent Stimuli Responsive Materials: An Innovative Step in Drug Delivery System. *Current Biochemical Engineering* 6 41-52 2020

Saumen Karan, Souvik Debnath, Ketousetuo Kuotsu, Tapan Kumar Chatterjee. In-vitro and in-vivo evaluation of polymeric microsphere formulation for colon targeted delivery of 5-fluorouracil using biocompatible natural gum katira. *International Journal of Biological Macromolecules* 158 922-936 2020.

Mandal Sudip K., Utsab Debnath, Amresh Kumar, Sabu Thomas, **Subhash C. Mandal**, Manabendra Dutta Choudhury, and Partha Palit. "Natural Sesquiterpene Lactones in the Prevention and Treatment of Inflammatory Disorders and cancer: A Systematic Study of this Emerging Therapeutic Approach

## Annual Report 2020-2021

based on Chemical and Pharmacological Aspect." *Letters in Drug Design & Discovery* 17,( 9) (2020): 1102-1116.

Roychoudhury, Shubhadeep, Barnali Sinha, Birupakshya Paul Choudhury, Niraj Kumar Jha, Partha Palit, Surekha Kundu, **Subhash C. Mandal** et al. "Scavenging properties of plant-derived natural biomolecule para-coumaric acid in the prevention of oxidative stress-induced diseases." *Antioxidants* 10, no. 8 (2021): 1205

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. **1.Dewanjee, S.**, Zia-Ul-Haq, M., Sarkhel, S., Chakraborty P., Carotenoids as antiparkinson agent, *Carotenoids: Structure and Function in the Human Body*, M. Zia-Ul-Haq, **S. Dewanjee**, M. Riaz. (Eds.), 533-554, Springer, ISBN 978-3-030-46459-2, 2021.
  2. **2.Sahu, R., Dewanjee, S.**, Carotenoids as antidiabetic agents, *Carotenoids: Structure and Function in the Human Body*, M. Zia-Ul-Haq, **S. Dewanjee**, M. Riaz. (Eds.), 513-532, Springer, ISBN 978-3-030-46459-2, 2021.
  3. **3.Dewanjee, S.**, Das, S., Joardar, S., Bhattacharjee, S., Chakraborty, P., Carotenoids as anticancer agents, *Carotenoids: Structure and Function in the Human Body*, M. Zia-Ul-Haq, S. Dewanjee, M. Riaz. (Eds.), 475-512, Springer, ISBN 978-3-030-46459-2, 2021.
  4. **4.Dewanjee, S.**, Bhattacharjee, N., Chakraborty, P., Bhattacharjee, S., Carotenoids as antioxidants, *Carotenoids: Structure and Function in the Human Body*, M. Zia-Ul-Haq, **S. Dewanjee**, M. Riaz. (Eds.), 447-474, Springer, ISBN 978-3-030-46459-2, 2021.
  5. **5.Dewanjee, S.**, Paul, P., Dua, T.K., Bhowmick, S., Saha, A., Big leaf mahogany seeds: *Swieteniamacrophylla* seeds offer possible phytotherapeutic intervention against diabetic pathophysiology, *Nuts and Seeds in Health and Disease (2<sup>nd</sup> Edition)*, V.R. Preedy and R.R. Watson (Eds), 543-565, Academic Press, Elsevier, ISBN 978-0-12-818553-7, 2020.
- 
6. De P., Roy K. (2021) Computational Modeling of ACE2-Mediated Cell Entry Inhibitors for the Development of Drugs Against Coronaviruses. In: Roy K. (eds) In Silico Modeling of Drugs Against Coronaviruses. Methods in Pharmacology and Toxicology. Humana, New York, NY. [https://doi.org/10.1007/7653\\_2020\\_49](https://doi.org/10.1007/7653_2020_49)
  7. Kumar V., Roy K. (2021) Computational Modeling of RdRp Inhibitors for the Development of Drugs against Novel Coronavirus (nCoV). In: Roy K. (eds) In Silico Modeling of Drugs Against Coronaviruses. Methods in Pharmacology and Toxicology. Humana, New York, NY. [https://doi.org/10.1007/7653\\_2020\\_51](https://doi.org/10.1007/7653_2020_51)
  8. Kumar V., Roy K. (2021) Computational Modeling of Chloroquine Analogues for Development of Drugs Against Novel Coronavirus (nCoV). In: Roy K. (eds) In Silico Modeling of Drugs Against Coronaviruses. Methods in Pharmacology and Toxicology. Humana, New York, NY. [https://doi.org/10.1007/7653\\_2020\\_55](https://doi.org/10.1007/7653_2020_55)

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration

**Annual Report 2020-2021**

<b>Dr. Mohiuddin Qadir and Prof B.Mukherjee</b>	Dr. Mohiuddin Qadir and Prof B.Mukherjee	North Dakota State University- Jadavpur University	International collaboration for the development of a Nano-drug delivery system for the delivery of anticancer drugs.	2021-2023 (Initially)
<b>Prof. A. Samanta and Prof. B. Mukherjee</b>	Prof. A. Samanta and Prof. B. Mukherjee	Defense Work Research Development Organization (DRDO-LSRB)	Fabrication and Characterization of Natural Polysaccharide based Bio-erodible localized spongy scaffold: A New Advanced Wound Care Tool	2018-2021
<b>Dr. Probir Kumar Ojha</b>	<b>Dr. Utpal Nandi</b>	CSIR-IIIM, Canal Road, Jammu – 180001	Paper	Last 4 years

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year.**

**A. Books/Monographs Published :**

<b>Name of the Author(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
Mukherjee B, Dhara M, Dutta D, Chakraborty A, Chakraborty S, Sengupta S, Mondal L, Dutta L, Pal K. 2021 Jan 1 (pp. 3-28). Academic Press.	Biopolymer-based materials in nanomedicine: Synthesis and characterization. In: InBiopolymer-Based Nanomaterials in Drug Delivery and Biomedical Applications	Academic press, Elsevier	B978-0-12-820874-8.00017-8	2021
Mukherjee B, Kumari L, Ehsan I, Ghosh P, Banerjee S, Chakraborty S, Ray M, Al Hoque A, Sahoo R. 2021 Jan 1 (pp. 143-164). Academic Press.	Guar gum-based nanomaterials in drug delivery and biomedical applications. In: InBiopolymer-Based Nanomaterials in Drug Delivery and Biomedical Applications	Academic press, Elsevier	B978-0-12-820874-8.00016-6	2021
<b>Biswajit Mukherjee, Soma Sengupta, Soumyabrata Banerjee, Moumita Dhara, Ashique</b>	Transdermal Nano medicines for Reduction of Dose and Site-	Springer Nature Singapore Pte Ltd.	978-981-15-6254-9	2020

**Annual Report 2020-2021**

Al Hoque, Leena Kumari, Manisheet Ray, Iman Ehsan, and Alankar Mukherjee	Specific Drug Delivery, In: Nano Medicine and Nano Safety, M. K. Das, Y. V Pathak (eds.)			
<b>Biswajit Mukherjee,</b> Debasmita Dutta, Prasanta Ghosh, Brahmachary Paul, Ramkrishna Sen, and Samrat Chakraborty	Recent Trends for Nano medicine Safety, In: Nano Medicine and Nano Safety, M. K. Das, Y. V Pathak (eds.)	Springer Nature Singapore Pte Ltd.	978-981-15-6254-9	2020
<b>Biswajit Mukherjee,</b> Samrat Chakraborty, Iman Ehsan, Apala Chakraborty, Leena Kumari, Alankar Mukherjee, Sounak Sarkhel.	Conventional and Nonconventional Approaches to Site-Specific Targeting of Nanotherapeutics in Some Infectious Diseases and Metabolic Disorders. (Chapter 6.), In: Nanoformulations in Human Health. 2020 S. Talegaonkar, M. Rai (eds.)	Springer Nature Switzerland AG	978-3-030-41857-1	2020
Amit Kundu, Prasanta Dey, Rammohan Bera, Ratul Sarkar, Boomin Kim, Sam Kacew, Byung Mu Lee, Sanmoy Karmakar, Hyung Sik Kim	Adverse health risk from prolonged consumption of formaldehyde-preserved carps in eastern region of Indian population	Environmental Science and Pollution Research	27	pages 16415–16425
Malobi Seth, Hasmat Khan, Rudranil Bhowmik, Sanmoy Karmakar & Sunirmal Jana	Facile fabrication of fluorine free zirconium zinc stearate based super hydrophobic and superoleophilic coating on cotton fabric with superior antibacterial property	Journal of Sol-Gel Science and Technology	94	pages 127–140
Kumar Anand, Mahfoozur Rahman, Subhabrata Ray, Sanmoy Karmakar	Insights into the Approach, Fabrication, Application, and Lacunae of Nanoemulsions in Drug Delivery Systems	Critical Reviews™ in Therapeutic Drug Carrier Systems	37	511-551
QSPR Modeling of Adsorption of Pollutants by Carbon Nanotubes (CNTs).	Ojha PK, Mandal D, Roy K.	Humana, New York, NY	2020	QSPR Modeling of Adsorption of Pollutants by

**Annual Report 2020-2021**

				Carbon Nanotubes (CNTs).
Chemometric Modeling of Absorption Maxima of Carbazole Dyes Used in Dye-Sensitized Solar Cells	Krishna JG, <b>Ojha PK</b> , Roy K,	Springer Nature	2021	Chemometric Modeling of Absorption Maxima of Carbazole Dyes Used in Dye-Sensitized Solar Cells
Subhash C Mandal, R Chakraborty and S Sen	Evidence Based Validation of Traditional Medicines: A comprehensive Approach	Springer	978-981-15-8126-7	2021

**B. Books/Monographs Edited :**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Zia-Ul-Haq, M., <b>Dewanjee, S.</b> , Riaz, M.	Carotenoids: Structure and Function in the Human Body	Springer	ISBN 978-3-030-46459-2	2021

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Topic-Way Forward to Tackle Challenges of COVID 19 in India; Webinar organized by Indian Association of Pharmaceutical Scientists and Technologists; International Pharmaceutical Federation; Manipal academy of higher education	Prof. Biswajit Mukherjee	-	Online	1 day
on-line demonstration session of USP-4 Dissolution flow-through Test Apparatus, organized by SORTAX	Prof. Biswajit Mukherjee	-	Online	1 day



**Annual Report 2020-2021**

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Tapan Kumar Giri</b>	Resource Person	AICTE sponsored Short Term Training Programme	Raipur, Chhattisgarh	One week
<b>Prof. Biswajit Mukherjee</b>	Sessions chaired	on-line demonstration session of USP-4 Dissolution flow-through Test Apparatus, organized by SORTAX	Online	1 day
<b>Prof. Biswajit Mukherjee</b>	Invited lecturer	Mega Flagship event for Young Researchers in the field of Pharmaceutical Sciences, DISSO RESEARCH PRESENTATIONS INDIA 2020 - ONLINE Society for Pharmaceutical Dissolution Sciences (SPDS) in collaboration with the Association of Pharmaceutical Teachers of India (APTI)	Online	3 days
<b>Prof. Biswajit Mukherjee</b>	Sessions chaired	Web session by Mr. Debasish Chakraborty, VP, Piramal Enterprise and Mr. Amit Kanabar, Head COE, Macleod's Pharmaceutical, organized by Indian Association of Pharmaceutical Scientists and Technologists	Online	1 day

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Tapan Kumar Giri</b>	AICTE sponsored Short Term Training Programme	Raipur, Chhattisgarh	One week

**6. Major Achievements of the Department during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Tapan Kumar Giri</b>	Named in the world's top 2% of Scientists List	Stanford University	USA

## Annual Report 2020-2021

<b>Prof. Subhash C Mandal</b>	Shiksha Ratna Award 2020	Department of Higher Education, Government of West Bengal	Kolkata
-------------------------------	--------------------------	---	---------

**C. Awards received by Research Scholars/Students:**

<b>Samrat Chakraborty</b>	First runner up in DRPI, 2021	SPDS in association with AAPS and APTI	East zone
<b>Leena Kumari</b>	2 <sup>nd</sup> prize in oral presentation in International conference (2021)	School of Health Sciences, NSHM Knowledge Campus, Kolkata	Kolkata

### POWER ENGINEERING

[Salt Lake Campus]

Phone: 033-2335-5813

033-2340-6159

H.O.D : Prof. Amitava Datta

Prof. Amitava Gupta (since 28.1.2021)

E-mail: [hodpower@jadavpuruniversity.in](mailto:hodpower@jadavpuruniversity.in)

**1. Vision and Mission of the Department:**

**A. Vision:** To emerge as a globally recognized department in imparting quality education to produce successful Power Engineers

**B. Mission:**

- To provide the students with the state of art of enabling technologies related to power engineering
- To motivate the students to pursue higher studies, research and development, and entrepreneurship.
- To generate skilled human resources for sustainable development of the energy and allied sectors

**2. Academic Activities:**

**A. Programmes offered:**

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Power Engineering	4	1 <sup>st</sup> year	56
		2 <sup>nd</sup> year	46

## Annual Report 2020-2021

		3 <sup>rd</sup> year	45
		4 <sup>th</sup> year	48
M. Power Engineering	2	1 <sup>st</sup> year	14
		2 <sup>nd</sup> Year	17
Ph.D			25

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
9	0	5	13

### 4. Research Activities:

#### A. Areas of Research Activities :

Energy, Nonconventional Generation and Environment, Microgrids, Power system optimization, Power Economics and Deregulation, Soft computing techniques, Condition monitoring of power system equipment, Combustion, Surface science and engineering, Water harvesting, Novel Materials, Computational and experimental fluid dynamics and heat transfer, Bioconvection, Microfluidics, phase change heat transfer, biological fluid flow, heat transfer using nanofluid, experimental aerodynamics, hydro and wind power, application of nanofluids in power engineering, Control & Instrumentation, real-time & embedded systems, Wireless sensor networks, Applied superconductivity, Micro-grids.

#### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Development of a Renewable-based HYBRID energy system with Simulation Facilities	Departmental	Prof. Amitava Datta (Coordinator)	DST-FIST	2019—2024
Indigenously Developed Spectroscopic Radiation Portal Monitors for National Security	Individual	Prof. Amitava Gupta	MHRD/DRDO IMPRINT PROGRAM	2018-2022
Optimizing wettability-engineered metal mesh for cooling tower fog harvesting	Individual	Prof. Ranjan Ganguly (PI) Prof. Amitava Datta (CI)	DST-SERB	2020-2023
Vision guided AutoLander for Planetary missions	Individual	Prof. Amitava Gupta - PI	Indian Space Research Organization (ISRO)	2019—2021
Optimization of components of the domestic LPG stove through numerical simulation for increased thermal efficiency	Individual	Prof. Amitava Datta –PI Prof. Ranjan Ganguly – Co PI	LPG Equipment Research Corporation, Govt. of India, MoPNG	2019—2021

## Annual Report 2020-2021

Enhancing Quality Assurance Management and Benchmarking Strategies in Indian Universities	Institutional	Amitava Datta (Nodal Coordinator)	EU, ERASMUS PLUS	2017-21
---	---------------	-----------------------------------	------------------	---------

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
3	25

### D. Research Articles Published in Journals during the year: (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

- Biswas, N., Chamkha, A. J., & Manna, N. K. (2020). Energy-saving method of heat transfer enhancement during magneto-thermal convection in typical thermal cavities adopting aspiration. *SN Applied Sciences*, 2(11) doi:10.1007/s42452-020-03634-w.
- Datta, A., Debbarma, D., Biswas, N., Sanyal, D., & Das, A. K. (2021). The role of flow structures on the thermal performance of microchannels with wall features. *Journal of Thermal Science and Engineering Applications*, 13(2) doi:10.1115/1.4047709
- Sarkar, U. K., & Biswas, N. (2021). Exact and limiting solutions of fluid flow for axially oscillating cylindrical pipe and annulus. *SN Applied Sciences*, 3(3) doi:10.1007/s42452-021-04192-5
- Sarkar, U. K., Biswas, N., & Öztop, H. F. (2021). Multiplicity of solution for natural convective heat transfer and entropy generation in a semi-elliptical enclosure. *Physics of Fluids*, 33(1) doi:10.1063/5.0037260
- Manna, N.K., Mondal, M.K., Biswas, N. (2021). A novel multi-banding application of magnetic field to convective transport system filled with porous medium and hybrid nanofluid. *Physica Scripta*. 96, 065001 doi: 10.1088/1402-4896/abecbf.
- Mondal, M.K., Biswas, N., Manna, N.K., & Chamkha, A.J. (2021). Enhanced magnetohydrodynamic thermal convection in a partially-driven cavity packed with a nanofluid-saturated porous medium. *Mathematical Methods in the Applied Sciences*. doi: 10.1002/mma.7280.
- Datta, A., Sah, S., Majumder, A., Biswas, N. & Sanyal, D. (2021). Heat transfer enhancement and optimization of microchannel heat sink by adopting various shape of ribs: an application of Multi Objective Particle Swarm Optimization (MOPSO) algorithm. *Journal of Thermal Analysis & Calorimetry*. 146, 2681–2697 doi: 10.1007/s10973-020-10510-7.
- Biswas, N., Manna, N.K., Datta, A., Mandal, D.K., & Benim, A.C. (2020). Role of aspiration to enhance MHD convection in protruded heater cavity. *Progress in Computational Fluid Dynamics*. 20:6, 363–378 DOI: 10.1504/PCFD.2020.111408.
- Biswas, N., Sarkar, U. K., Chamkha, A. J., & Manna, N.K. (2021). Magneto-hydrodynamic thermal convection of Cu–Al<sub>2</sub>O<sub>3</sub>/water hybrid nanofluid saturated porous media subjected to half-sinusoidal non-uniform heating. *Journal of Thermal Analysis & Calorimetry*. 143, 1727–1753, doi: 10.1007/s10973-020-10123-0.
- Biswas, N., Chamkha, A. J., & Manna, N.K. (2021). Effects of half-sinusoidal nonuniform heating during MHD thermal convection in Cu–Al<sub>2</sub>O<sub>3</sub>/water hybrid nanofluid saturated with porous media. *Journal of Thermal Analysis & Calorimetry*. 143 (2021) 1665–1688, doi: 10.1007/s10973-020-10109-y.
- Hazra, C., Biswas, N., & Manna, N.K. (2020). Thermal magneto-hydrodynamics in a ventilated porous enclosure. *Sādhanā*. 45:224, 1 – 12, doi: 10.1007/s12046-020-01459-2.

## Annual Report 2020-2021

12. Mondal, C., Sarkar, R., Sarkar, S., Biswas, N. & Manna, N.K. (2021). Magneto-thermal convection in lid-driven cavity. *Sādhanā*. 45:227, 1 – 16, doi: 10.1007/s12046-020-01463-6.
13. Mallick, H., Mondal, H., Biswas, N., & Manna, N.K. (2021). Buoyancy driven flow in a parallelogrammic enclosure with an obstructive block and magnetic field. *Materials Today: Proc.* 44(2), 3164-3171 doi: 10.1016/j.matpr.2021.02.825.
14. Amit, K., Datta, A., Biswas, N., Das, S., & Das, P. (2021). Designing of microsink to maximize the thermal performance and minimize the entropy generation with the role of flow structures. *International Journal of Heat and Mass Transfer*, 176 doi:10.1016/j.ijheatmasstransfer.2021.121421
15. Banerjee, S., Bose, D., Hazra, A., Chattopadhyay, S., Ghosh, K., & Gupta, A. (2020). Controller design for operation of a 700 MWe PHWR with limited voiding. *Nuclear Engineering and Design*, 357 doi:10.1016/j.nucengdes.2019.110370
16. Basu, M. (2020). Electric power and heat generation expansion planning. *Electric Power Components and Systems*, 48(4-5), 501-511. doi:10.1080/15325008.2020.1793840
17. Basu, M. (2021). Fuel constrained dynamic economic dispatch with demand side management. *Energy*, 223 doi:10.1016/j.energy.2021.120068
18. Basu, M. (2021). Heat and power generation augmentation planning of isolated microgrid. *Energy*, 223 doi:10.1016/j.energy.2021.120062
19. Basu, M. (2020). Optimal generation scheduling of fixed head hydrothermal system with demand-side management considering uncertainty and outage of renewable energy sources. *IET Generation, Transmission and Distribution*, 14(20), 4321-4330. doi:10.1049/iet-gtd.2018.7103
20. Basu, S., & Basu, M. (2021). Social group entropy optimization for day-ahead heat and power scheduling of an isolated microgrid. *Engineering Optimization*, doi:10.1080/0305215X.2021.1919099
21. Bose, D., Hazra, A., Mukhopadhyay, S., & Gupta, A. (2020). A co-ordinated control methodology for rapid load-following operation of a pressurized water reactor based small modular reactor. *Nuclear Engineering and Design*, 367 doi:10.1016/j.nucengdes.2020.110748
22. Das, C., Gupta, R., Halder, S., Datta, A., & Ganguly, R. (2021). Filmwise condensation from humid air on a vertical superhydrophilic surface: Explicit roles of the humidity ratio difference and the degree of subcooling. *Journal of Heat Transfer*, 143(6) doi:10.1115/1.4050412
23. Das, G., De, M., & Mandal, K. K. (2020). Analysis of flyback converter design using PV-based MOSFET switching. *International Journal of Nanoparticles*, 12(4), 289-315. doi:10.1504/IJNP.2020.112400
24. Das, G., De, M., & Mandal, K. K. (2021). Multi-objective optimization of hybrid renewable energy system by using novel autonomic soft computing techniques. *Computers and Electrical Engineering*, 94 doi:10.1016/j.compeleceng.2021.107350
25. Das, M., Ganguly, R., Datta, A., Verma, M. M., & Bera, A. K. (2020). Computational fluid dynamic analyses of flow and combustion in a domestic liquefied petroleum gas cookstove burner-part II: Burning characteristics and overall performance. *Journal of Thermal Science and Engineering Applications*, 12(3) doi:10.1115/1.4044861
26. Das, M., Ganguly, R., Datta, A., Verma, M. M., & Bera, A. K. (2021). Performance improvement of a domestic liquefied petroleum gas cook stove using an extended spill-tray and an annular metal insert. *Journal of Thermal Science and Engineering Applications*, 13(2) doi:10.1115/1.4047525
27. Das, S., & Basu, M. (2020). Day-ahead optimal bidding strategy of microgrid with demand response program considering uncertainties and outages of renewable energy resources. *Energy*, 190 doi:10.1016/j.energy.2019.116441
28. Das, S., Halder, K., & Gupta, A. (2020). Delay handling method in dominant pole placement based PID controller design. *IEEE Transactions on Industrial Informatics*, 16(2), 980-991. doi:10.1109/TII.2019.2918252
29. Das, T., Roy, R., & Mandal, K. K. (2020). Impact of the penetration of distributed generation on optimal reactive power dispatch. *Protection and Control of Modern Power Systems*, 5(1) doi:10.1186/s41601-020-00177-5
30. Datta, A., Singh, V. K., Das, C., Halder, A., Ghoshal, D., & Ganguly, R. (2020). Fabrication and characterization of transparent, self-cleaning glass covers for solar photovoltaic cells. *Materials Letters*, 277 doi:10.1016/j.matlet.2020.128350

## Annual Report 2020-2021

31. De, M., Das, G., & Mandal, K. K. (2021). Proposing intelligent energy management model for implementing price rate in microgrids using demand response program. *Journal of the Institution of Engineers (India): Series B*, 102(3), 427-435. doi:10.1007/s40031-021-00564-y
32. Dey, S., Das, M., Ganguly, R., Datta, A., Verma, M. M., & Bera, A. K. (2020). Computational fluid dynamic analyses of flow and combustion in a domestic liquified petroleum gas cookstove burner-part I: Design optimization of mixing tube-burner assembly. *Journal of Thermal Science and Engineering Applications*, 12(3) doi:10.1115/1.4044860
33. Dhar, P., & Chakraborty, N. (2021). Optimal techno-economic analysis of a renewable based hybrid microgrid incorporating gravity energy storage system in indian perspective using whale optimization algorithm. *International Transactions on Electrical Energy Systems*, 31(9) doi:10.1002/2050-7038.13025
34. Dutta, A., Santra, A. K., & Ganguly, R. (2021). Microfluidic concentration enhancement of bio-analyte by temperature gradient focusing via joule heating by DC plus AC field: A numerical approach. *Journal of Thermal Science and Engineering Applications*, 13(6) doi:10.1115/1.4050415
35. Ghosh, R., & Ganguly, R. (2020). Fog harvesting from cooling towers using metal mesh: Effects of aerodynamic, deposition, and drainage efficiencies. *Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy*, 234(7), 994-1014. doi:10.1177/0957650919890711
36. Ghosh, R., Patra, C., Singh, P., Ganguly, R., Sahu, R. P., Zhitomirsky, I., & Puri, I. K. (2020). Influence of metal mesh wettability on fog harvesting in industrial cooling towers. *Applied Thermal Engineering*, 181 doi:10.1016/j.applthermaleng.2020.115963
37. Halder, K., Das, S., & Gupta, A. (2020). Time delay handling in dominant pole placement with PID controllers to obtain stability regions using random sampling. *International Journal of Control*, doi:10.1080/00207179.2020.1764110
38. Halder, K., Das, S., & Gupta, A. (2020). Transformation of LQR weights for discretization invariant performance of PI/PID dominant pole placement controllers. *Robotica*, 38(2), 271-298. doi:10.1017/S0263574719000596
39. Hazra, A., Das, S., Laddha, A., & Basu, M. (2020). Economic power generation strategy for wind integrated large power network using heat transfer search algorithm. *Journal of the Institution of Engineers (India): Series B*, 101(1), 15-21. doi:10.1007/s40031-020-00427-y
40. Jana, D., & Chakraborty, N. (2020). Generalized stochastic petri nets for uncertain renewable-based hybrid generation and load in a microgrid system. *International Transactions on Electrical Energy Systems*, 30(4) doi:10.1002/2050-7038.12195
41. Kumar, S., Mandal, K. K., & Chakraborty, N. (2020). A novel opposition-based tuned-chaotic differential evolution technique for techno-economic analysis by optimal placement of distributed generation. *Engineering Optimization*, 52(2), 303-324. doi:10.1080/0305215X.2019.1585832
42. Pattanaik, J. K., Basu, M., & Dash, D. P. (2020). Heat transfer search algorithm for combined heat and power economic dispatch. *Iranian Journal of Science and Technology - Transactions of Electrical Engineering*, 44(2), 963-978. doi:10.1007/s40998-019-00280-w
43. Pattanaik, J. K., Basu, M., & Dash, D. P. (2020). Improved real-coded genetic algorithm for fixed head hydrothermal power system. *IETE Journal of Research*, doi:10.1080/03772063.2020.1785339
44. Roy, K., Mandal, K. K., & Mandal, A. C. (2020). A hybrid RFCRO approach for the energy management of the grid connected microgrid system. *International Transactions on Electrical Energy Systems*, 30(12) doi:10.1002/2050-7038.12660
45. Sanki, P., Basu, M., Pal, P. S., & Das, D. (2021). Application of a novel PIPDF controller in an improved plug-in electric vehicle integrated power system for AGC operation. *International Journal of Ambient Energy*, doi:10.1080/01430750.2021.1920460
46. Sanki, P., Mazumder, S., Basu, M., Pal, P. S., & Das, D. (2021). Moth flame optimization based fuzzy-PID controller for Power-Frequency balance of an islanded microgrid. *Journal of the Institution of Engineers (India): Series B*, 102(5), 997-1006. doi:10.1007/s40031-021-00607-4
47. Sen, U., Roy, T., Ganguly, R., Angeloni, L. A., Schroeder, W. A., & Megaridis, C. M. (2020). Explosive behavior during binary-droplet impact on superheated substrates. *International Journal of Heat and Mass Transfer*, 154 doi:10.1016/j.ijheatmasstransfer.2020.119658

## Annual Report 2020-2021

48. Sikdar, P., Datta, A., Biswas, N., & Sanyal, D. (2020). Identifying improved microchannel configuration with triangular cavities and different rib structures through evaluation of thermal performance and entropy generation number. *Physics of Fluids*, 32(3) doi:10.1063/1.5137842
49. Yadav, D. K., Gupta, A., & Munshi, P. (2020). Design of NDI-SMC based robust hybrid nonlinear controller for load following operation in pressurized water reactor. *Nuclear Engineering and Design*, 363 doi:10.1016/j.nucengdes.2020.110604
50. Sarkar, S., Purkait, P., & Das, S. (2021). NI CompactRIO-based methodology for online detection of stator winding inter-turn insulation faults in 3-phase induction motors. *Measurement: Journal of the International Measurement Confederation*, 182 doi:10.1016/j.measurement.2021.109682
51. Das, B., Bhattacharya, A., Datta, A. (2020), Kinetic Modeling of Biomass Gasification and Tar Formation in a Fluidized Bed Gasifier using Equivalent Reactor Network (ERN), *Fuel*, 280: 118582, Doi: [10.1016/j.fuel.2020.118582](https://doi.org/10.1016/j.fuel.2020.118582).
52. Moitra, S., Roy, T., Ganguly, R., Megaridis, C.M., (2021) Jet impact on superhydrophobic metal mesh, *Langmuir*, 37(9), pp. 2891-2899. doi: [10.1021/acs.langmuir.0c03301](https://doi.org/10.1021/acs.langmuir.0c03301).
53. Santra, D. Mukherjee, A., Sarker, K., Mondal, S. (2020) Dynamic economic dispatch using hybrid metaheuristics, *Journal of Electrical Systems and Information Technology*, *Journal of Electrical Systems and Information Technology*, 7(3), pp. 1—30, doi: 10.1186/s43067-020-0011-2.
54. Santra, D. Mukherjee, A., Sarker, K., Mondal, S. (2021) Hybrid Genetic Algorithm-Gravitational Search Algorithm to Optimize Multi- Scale Load Dispatch, *International Journal of Applied Metaheuristic Computing*, 12(3), pp. 28—52, doi: 10.4018/IJAMC.2021070102.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Gupta, A. (2020). Robust control of nuclear reactors with Proportional—Integral-derivative (PID) controllers: The fractional order (FO) and interval approaches doi:10.1007/978-981-15-0536-2\_7, *Energy, Dynamics and Control of Energy Systems*, ISBN: 978-981-15-0538-6.
2. Das, C., Ghosh, R., Datta, A., Ganguly, R., “Wettability-engineering: A skin-deep approach of solving the energy-water nexus” In: *Advances in Multiphase Flows*. Editors: Gupta, A.K., De, A.K., Begell House Inc. ISBN: 978-1-56700-504-2.
3. Banerjee S., Ganguly R. “Simulation of Biomagnetic Fluid Flow in a Lid-Driven Cavity Under Steady Localized Magnetic Field,” In: Ramkrishna D., Sengupta S., Dey Bandyopadhyay S., Ghosh A. (eds) *Advances in Bioprocess Engineering and Technology. Lecture Notes in Bioengineering*. Springer, Singapore. [https://doi.org/10.1007/978-981-15-7409-2\\_42](https://doi.org/10.1007/978-981-15-7409-2_42), 2021.
4. Biswas, N., Samanta, R., Datta, A., and Manna, N. K. (2021). MHD convection in cavity under partially applied magnetic fields. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, doi: 10.1007/978-981-16-2347-9\_11, eBook ISBN 978-981-16-2347-9.
5. Datta, A., Biswas, N. and Manna, N. K. (2021). Magneto-convective heat transfer in a cavity under partial magnetic fields. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, doi: 10.1007/978-981-16-2347-9\_11, eBook ISBN 978-981-16-2347-9.
6. Mondal, C., Biswas, N. and Manna, N. K. (2021). MHD Thermal Convection of Nanofluid Saturated Porous Cavity Heated Linearly. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, Springer Publications. doi: [doi.org/10.1007/978-981-16-2347-9\\_4](https://doi.org/10.1007/978-981-16-2347-9_4), eBook ISBN 978-981-16-2347-9.
7. Biswas, N., Datta, A., Manna, N. K. (2021). Electro-thermal Convection in a Rectangular Enclosure. *Lecture Notes in Mechanical Engineering, Advances in Thermal Engineering, Manufacturing, and Production Management*, Springer Publications. doi: [doi.org/10.1007/978-981-16-2347-9-4](https://doi.org/10.1007/978-981-16-2347-9-4), eBook ISBN 978-981-33-4165-4.

**F. Research Articles Published in Conference Proceedings during the year:**

**(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**

1. Chowdhury, A., Roy, R., & Mandal, K. K. (2020). Optimal allocation of wind based DG for enhancement of technical, economic and social benefits using jaya algorithm for radial distribution networks. Paper presented at the 2020 International Conference on Convergence to Digital World - Quo Vadis, ICCDW 2020, doi:10.1109/ICCDW45521.2020.9318659
2. Chowdhury, A., Roy, R., & Mandal, K. K. (2020). Optimal allocation of wind based DG for enhancement of technical, economic social benefits using cuckoo search algorithm for radial distribution networks. Paper presented at the 2020 International Conference on Computer, Electrical and Communication Engineering, ICCECE 2020, doi:10.1109/ICCECE48148.2020.9223085
3. Chowdhury, A., Roy, R., & Mandal, K. K. (2020). Optimal allocation of wind turbine & SVC using cuckoo search algorithm for enhancement of techno-socio-environmental benefits in distribution network. Paper presented at the 2020 21st National Power Systems Conference, NPSC 2020, doi:10.1109/NPSC49263.2020.9331856
4. Chowdhury, A., Roy, R., & Mandal, K. K. (2021). Techno-socio-economic improvements by PV based DG & BESS integration in radial distribution networks using CSA. Paper presented at the Proceedings of the 2021 1st International Conference on Advances in Electrical, Computing, Communications and Sustainable Technologies, ICAECT 2021, doi:10.1109/ICAECT49130.2021.9392520
5. Das, T., Roy, R., & Mandal, K. K. (2021). Integrated pv system with optimal reactive power dispatch for voltage security using jaya algorithm. Paper presented at the Proceedings of the 7th International Conference on Electrical Energy Systems, ICEES 2021, 56-61. doi:10.1109/ICEES51510.2021.9383711
6. Das, T., Roy, R., & Mandal, K. K. (2020). Optimal reactive power dispatch based on modified JAYA algorithm. Paper presented at the 2020 International Conference on Computer, Electrical and Communication Engineering, ICCECE 2020, doi:10.1109/ICCECE48148.2020.9223111 .
7. Das, T., Roy, R., & Mandal, K. K. (2021). Solving optimal reactive power dispatch problem with the consideration of load uncertainty using modified JAYA algorithm. Paper presented at the Proceedings of the 2021 1st International Conference on Advances in Electrical, Computing, Communications and Sustainable Technologies, ICAECT 2021, doi:10.1109/ICAECT49130.2021.
8. Roy, R., Chowdhury, A., & Mandal, K. K. (2020). Techno-socio-economic benefits using CS algorithm in radial distribution. Paper presented at the Proceedings - 2020 IEEE India Council International Subsections Conference, INDISCON 2020, 175-179. doi:10.1109/INDISCON50162.2020.00045
9. Roy, R., Das, T., & Mandal, K. K. (2020). Optimal reactive power dispatch for voltage security using JAYA algorithm. Paper presented at the 2020 International Conference on Convergence to Digital World - Quo Vadis, ICCDW 2020, doi:10.1109/ICCDW45521.2020.9318700
10. Sanki, P., Basu, M., & Pal, P. S. (2020). Automatic generation control in restructured power system with capacitive energy storage and communication delay based cascaded controller. Paper presented at the Proceedings of 2nd International Conference on VLSI Device, Circuit and System, VLSI DCS 2020, doi:10.1109/VLSIDCS47293.2020.9179859
11. Sanki, P., Basu, M., & Pal, P. S. (2020). Stability analysis of electric vehicle integrated microgrid for power frequency balance. Paper presented at the Proceedings of 2nd International Conference on VLSI Device, Circuit and System, VLSI DCS 2020, doi:10.1109/VLSIDCS47293.2020.9179904
12. Sardar, K., Maji, A., Mandal, K. K., & Tudu, B. (2021). Control strategy for active and reactive power regulation of grid tied photovoltaic system. Paper presented at the 2021 Innovations in Energy Management and Renewable Resources, IEMRE 2021, doi:10.1109/IEMRE52042.2021.9386738
13. Ghosh, P., Biswas, S., & Purkait, P. (2020). Modified particle swarm optimization based technique for power flow computation. Paper presented at the 2020 IEEE 17th India Council International Conference, INDICON 2020, doi:10.1109/INDICON49873.2020.9342566
14. Chatterjee, D., Biswas, N., Manna, N. K. & Mondal, D. K. (2021). Effect of bottom wall curvature on thermal convection of air/nanofluid in a differentially heated cavity subjected to a magnetic field. 2<sup>nd</sup>



## Annual Report 2020-2021

- International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021-055, India, pp. 1-10.
15. Maitra, S., Biswas, N., Manna, N. K., & Mondal, D. K. (2021). Curvature effect of heated sidewall during heat transport of different Prandtl number fluids in a square enclosure in the presence of a magnetic field. 2<sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021-046, India, pp. 1-10.
  16. Sen, K., Biswas, N., Sarkar, S., & Manna, N. K. (2021). Transport phenomena in a double driven cavity involving buoyancy, magnetic field and nanofluid. 2<sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021-044, India, pp. 1-10.
  17. Mondal, M. K., Biswas, N., Datta, A., & Manna, N. K. (2021). Effects of thermal aspect ratio on MHD thermal convection of Cu-water nanofluid saturated porous cavity, 2<sup>nd</sup> International Conference on Recent Advancements in Mechanical Engineering, ICROME 2021, February 7-9, 2021, NIT Silchar, Assam, India, Paper no. ICROME 2021-024, India, pp. 1-10.
  18. Mondal, M. K., Datta, A., Biswas, N. & Manna, N. K. (2020). MHD mixed convective heat transfer in a partially heated partially driven cavity filled with Cu-water nanofluid saturated porous media, Proceedings of the 6<sup>th</sup> International and 43<sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power (FMFP 2020), December 9-11, 2020, IIT Guwahati, Guwahati-781039, Assam, India, Paper no. FMFP2020-011, pp. 1-6.
  19. Sarkar, U. K., & Biswas, N. (2020). Natural Convection in a Semi-circular Enclosure. Proceedings of the 6<sup>th</sup> International and 43<sup>rd</sup> National Conference on Fluid Mechanics and Fluid Power (FMFP 2020), December 9-11, 2020, IIT Guwahati, Guwahati-781039, Assam, India, Paper no. FMFP2020-015, pp. 1-6.
  20. Biswas, N., Datta, A., Mondal, D. K., & Manna, N. K. (2021). Unsteady development of Marangoni convection in a sidewall moving open cavity. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012024, pp. 1-8.
  21. Mondal, M. K., Biswas, N., Sarkar, U. K., Manna, N. K., & Mondal, D. K. (2021). Effect of partial wall motion on MHD mixed convection heat transfer undergoing in a porous cavity filled with Cu-water nanofluid with a centrally mounted heat source. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012025, pp. 1-8.
  22. Maitra, S., Manna, N. K., Mondal, D. K. & Biswas, N. (2021). Thermal convection in an inclined cavity under the influence of partial magnetic field. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012029, pp. 1-8.
  23. Chatterjee, D., Manna, N. K., Mondal, D. K. & Biswas, N. (2021). Effect of partial magnetic field on thermo gravitational convection in an inclined cavity. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012030, pp. 1-9.
  24. Mondal, D. K., Hazra, A. & Biswas, N. (2021). Effect of particle size on fluid flow and heat transfer in a pipe with slurry flow. 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI 2021), IOP Conf. Series: Materials Science and Engineering, 1080 (2021) 012026, pp. 1-8.
  25. Mondal, C., Biswas, N., Manna, N. K. (2020). MHD convection of nanofluid saturated porous cavity heated linearly. 1<sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), December 19-20, 2020, India, Paper No. TF-1577, pp. 1-6.
  26. Biswas, N., Samanta, R., Datta, A. & Manna, N. K. (2020). MHD convection in cavity under uniform heating with partially applied magnetic fields. 1<sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), December 19-20, 2020, India, Paper No. TF-158, pp. 1-6.

## Annual Report 2020-2021

27. Datta, A., Biswas, N., & Manna, N. K. (2020). Magneto-convective heat transfer in a cavity under partial magnetic fields. 1<sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020), December 19-20, 2020, India, Paper No. TF-152, pp. 1–6.

### G. Patents Granted/ Published/ Filed during the year:

Name of the Inventors	Title of the Patent	National/ International	Status Granted/ Published/ Filed	Patent Number	Date of Publication
Bera, A.K., Verma, M., Das, M., Datta, A., Ganguly, R	Spill-tray and pan support for thermal efficiency enhancement of a domestic LPG stove	International	Published	WO 2020/136446 A1	2020-21

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Ranjan Ganguly	C.M. Megaridis	MIE Department, University of Illinois at Chicago	Joint research, Summer visits	Continuing since 2014
Amitava Datta and Ranjan Ganguly	A.K.Bera	LPG Equipment Research Centre, Bangalore	Research	Since 2017
Ranjan Ganguly	I.K. Puri	McMaster University, Canada	Joint research guidance	Continuing since 2018
Ranjan Ganguly	Steffen Hardt	TU Darmstadt, Germany	Joint research	Since 2020
Ranjan Ganguly	Harunori N. Yoshikawa	Institut de Physique de Nice, France	Joint research	Since 2020
Nirmalendu Biswas	Ali J. Chamkha	Kuwait College of Science and Technology, Doha District, Kuwait	Joint research	Since 2020
Nirmalendu Biswas	Rama Subba Reddy Gorla	Air Force Institute of Technology, Dayton, Ohio – 45433, USA	Joint research	Since 2020
Nirmalendu Biswas	Hakan F. Öztop	Firat University, Elazığ–23119, Turkey	Joint research	Since 2020

## Annual Report 2020-2021

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**D. Refresher Courses Organized:**

**(Name of the Teachers, Title of the Course, if any, Duration,Place)**

Title of the Course	Name of the Coordinator(s)	Place	Date
Faculty Development Programme on“(FDP) Patenting Technology And Process Innovations Related To Renewable Energy”	N. Biswas (Power Engg.), and A. Chakraborty (School of Nuclear Studies & Applications, Jadavpur University)	Department of Power Engineering, Jadavpur University	17-22 February, 2021

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
Apurba K. Santra	Short Term Training Program on “Machine Learning: Algorithms and Applications in Data Science”	Vishwakarma Institute of Technology (An Autonomous Institute Affiliated to Savitribai Phule Pune University)	2—7 November, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Ranjan Ganguly	Invited Lecture	Short Term Training Program Biomass and Bioenergy"	NIT Agartala	March, 2021
Ranjan Ganguly	Invited Lecture	German Consulate Science Leccture Series	German Consulate, Kolkata	17 August, 2020
Amitava Datta	Invited Lecture	International Forum on Low Carbon Technology for Sustainable Development – Webinar	Webinar organized by Center for SDREM, JU	10 November, 2020
Amitava Datta	Invited Lecture	Webinar on Engine Combustion and Emission Diagnostics	Webinar Organized by NIT Agartala	5-9 October, 2020
Prithwiraj Purkait	Invited lecture	Invited Talk Series by Distinguished Professionals	UEM, Kolkata	1 October, 2021
Prithwiraj Purkait	Invited lecture	International Conference on Industrial Instrumentation & Control (ici2c-2021)	RCCIIT, Kolkata	20-22 August, 2021

**Annual Report 2020-2021**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prithwiraj Purkait</b>	Invited lecture	FDP on “Innovation and Intelligence” (FDPII 2020)	NIT, Durgapur	6-10 October, 2020
<b>Prithwiraj Purkait</b>	Invited lecture	STTP on “Recent Trends in Internet of Things (IoT) and Embedded System Based Monitoring and Control of Distributed Generation”	Narula Institute of Technology, Kolkata	10-15 August, 2020
<b>Prithwiraj Purkait</b>	Invited lecture	Innovation & Entrepreneurial Ideas fueled by COVID-19	Modern Institute of Engineering & Technology, Bandel	4 – 6 July 2020
<b>Prithwiraj Purkait</b>	Invited lecture	Research and Technical Challenges in Energy and Power System (RTCEPS 2020)	Narula Inst. of Tech, Kolkata	29 June-4 July, 2020
<b>Prof. Amitava Gupta</b>	Invited Lecture  (online platform)	OPAL-RT’s 12th Conference on Real-time Simulation RT-20	Montreal (Canada)	June, 2020
<b>Prof. Amitava Gupta</b>	Invited Lecture	STC titled Emerging Technologies in Industrial Automation	RTU Kota	February, 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Partha Sarathi Dutta</b>	Liquid droplet morphology on the fiber of a fog harvester mesh and the droplet detachment conditions under gravity	8th International and 47th National Conference on Fluid Mechanics and Fluid Power	IIT Guwahati, India,	December, 9–11, 2020
<b>Anirban Chowdhury</b>	Comparison of improvement in technical, commercial and	Computational Advancement in Communication	Kolkata	26-28 November, 2020

### Annual Report 2020-2021

	environmental benefits by optimal single-point, twin-point and triple-point deterministic PV-based DG injection by Jaya algorithm	Circuits and Systems 2020		
<b>Anirban Chowdhury</b>	Optimal allocation of Wind Turbine & SVC using Cuckoo Search Algorithm for enhancement of techno-socio-environmental benefits in distribution network	NPSC 2020: 21st National Power Systems Conference (NPSC 2020)	Gandhinagar	17-19 December, 2020
<b>Tanmoy Das</b>	Integrated pv system with optimal reactive power dispatch for voltage security using jaya algorithm	2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT)	Bhilai, India	19-20 February, 2021
<b>Krishnendu Sardar</b>	Control Strategy for Active and Reactive Power Regulation of Grid Tied Photovoltaic System	2021 Innovations in Energy Management and Renewable Resources(52042)	Kolkata	5-7 February, 2021
<b>Anirban Chowdhury</b>	Techno-socio-economic improvements by PV based DG & BESS integration in radial distribution networks using CSA	2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT)	Bhilai, India	19-20 February, 2021
<b>Tanmoy Das</b>	Solving Optimal Reactive Power Dispatch Problem with the Consideration of Load Uncertainty	2021 International Conference on Advances in Electrical, Computing, Communication and Sustainable	Bhilai, India	19-20 February, 2021

### Annual Report 2020-2021

	using Modified JAYA Algorithm	Technologies (ICAECT)		
<b>N. Biswas, R. Samanta, A. Datta, N. K. Manna</b>	MHD convection in cavity under uniform heating with partially applied magnetic fields	1 <sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020)	Jalpaiguri Government Engineering College, West Bengal, India	27-28 June, 2020
<b>A. Datta, N. Biswas, N. K. Manna</b>	Magneto-convective heat transfer in a cavity under partial magnetic fields	1 <sup>st</sup> International Conference on Thermal Engineering and Management Advances (ICTEMA 2020)	Jalpaiguri Government Engineering College, West Bengal, India	27-28 June, 2020

**6. Major Achievements of the Department during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
<b>Prof. Amitava Datta</b>	INAE Fellowship	Indian National Academy of Engineering	New Delhi

**B. Any other Honours received by the Faculty Members:**

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
<b>Prof. Amitava Datta</b>	Honorable Mention in the Stanford top 2% Scientists in 2020	Stanford University	Online
<b>Prof. Mousumi Basu</b>	Honorable Mention in the Stanford top 2% Scientists in 2020	Stanford University	Online
<b>Ranjan Ganguly</b>	Received Dr. M.G. Deshpande Memorial Award for the best paper from Academia.	Indian Society of Fluid Mechanics and Fluid Power	IIT Guwahati
<b>Nirmalendu Biswas</b>	Summer Research Fellowship	INAE	New Delhi

**C. Awards received by Research Scholars/Students:**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Partha Sarathi Dutta	Received Dr. M.G. Deshpande Memorial Award for the best paper from Academia.	Indian Society of Fluid Mechanics and Fluid Power	IIT Guwahati

## Annual Report 2020-2021

Shreyasi Maitra (Power Engg.) Along with Elina Haque (Production Engg.), HrishirajMallick (Mechanical Engg.), Soumyajit Biswas (Production Engg.)	Secured 1st position in Airbus Day Innovation Challenge - JU (Their team presented an idea on our chosen topic- “Using surface properties of wings, skins and leaves of organisms to solve problems in the aviation industry”).	AIRBUS-European multinational aerospace corporation. Airbus designs, manufactures and sells civil and military aerospace products worldwide and manufactures aircraft in Europe and various countries outside Europe	
--	---	--	--

**7. Extension Activities of the Department during the year:**

**B. Activities for the Society:**

- Prof. Amitava Datta was the Convener of the Sectional Committee IV (Engg and Tech) of West Bengal Academy of Science and Technology

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
1	B. Power Engg	M Tech.	IIT Madras
1	B. Power Engg	Ph.D	University of Illinois at Chicago
1	B. Power Engg	Ph.D	New Mexico State University
1	B. Power Engg	Ph.D	Lehigh University
1	B. Power Engg	MBA	IIM Ahmedabad
1	M. Power Engg	Ph.D	University of Illinois at Chicago

**B. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
GATE	6
CAT	1
GRE	3
TOFEL	3
State Government Services	1

## Annual Report 2020-2021

### PRINTING ENGINEERING [SALT LAKE CAMPUS]

Phone: 033-2340-6186

H.O.D : Sri Soumen Basak

Prof. Kanai Ch. Paul (Since 25.7.2020)

E-mail: hodprinting@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

A. **Vision:**To impart quality education in Printing Engineering so as to cater to the prevalent and emerging needs of the society and industry

B. **Mission:**To develop Engineering capabilities at par with global standards

- To meet relevant industrial and societal needs
- To motivate students to quality research and scholarly activities
- To promote innovative and collaborative activities for facing emerging challenges

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B. E. in Printing	4	1 <sup>st</sup> year	37
		2 <sup>nd</sup> year ...	22
		3 <sup>rd</sup> year	30
		4 <sup>th</sup> year	28
M.Tech in Printing Engineering and Graphic Communication	2	1 <sup>st</sup> Year	13
		2 <sup>nd</sup> Year	5

#### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
2	2	4	7

#### 4. Research Activities:

##### A. Areas of Research Activities :

1. Coating Technology
2. Soft Computing
3. Colour Science
4. Artificial Inteligenc
5. Paper Technology
6. Image Analysis
7. Material Science
8. Packaging Techology
9. Different Aspects of Printing Quality Factors, etc

##### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Dept.
---	---



## Annual Report 2020-2021

1	8
---	---

**D. Research Articles Published in Journals during the year: (International/National Peer-reviewed journals)**

1. Roy S., Pal, A.K., Rawal S. , “A review on straightening of bars and application of probabilistic approach on Moment-curvature relationship”, IOP Conf. Series: Materials Science and Engineering 810 (2020) 012080 IOP Publishing doi: 10.1088 / 1757-899 X/810/1/012080
2. Roy S., Pal, A.K., Das Talukder, N.K., “A Brief Review on Theoretical Aspects of Bar Straightening with Recent Developments in its Modelling, Simulation, Control System and Stabilisation.”, ICTP2021,Forming The Future, The Minerals, Metals & Materials Series, [https://doi.org/10.1007/978-3-030-75381-8\\_180](https://doi.org/10.1007/978-3-030-75381-8_180). pp 2135-2154 .
3. Roy S., Pal, A.K., Das Talukder, N.K., “A Probabilistic Approach on the Moment-Curvature relationship of Bar Straightening Process in Cross-Roll Arrangements”. Journal of Materials Processing Technology, June 2021(communicated and revised sent).

**E. Research Articles Published in Edited Volumes during the year:**

1. Mandal D., **Chatterjee, A.**,Tudu B. (2021): Convolution Neural Network-Driven Computer Vision System for Identification of Metanil Yellow Adulteration in Turmeric Powder. In: Hassanien A.E., Bhattacharyya S., Chakrabati S., Bhattacharya A., Dutta S. (eds) Emerging Technologies in Data Mining and Information Security. Advances in Intelligent Systems and Computing, vol 1286.Springer, Singapore. [https://doi.org/10.1007/978-981-15-9927-9\\_14](https://doi.org/10.1007/978-981-15-9927-9_14)

**F. Research Articles Published in Conference Proceedings during the year:**

1. Dr. Mahasweta Mondal, Dr. Swati Bandyopadhyay, "**To Predict the Lightfastness of Prints on Foil Applying Artificial Neural Network**", **Archiving 2020**-Society for Imaging Science and Technology,issn.2168-3204.2020.1.0.27, 2020
2. Mukherjee, G., **Chatterjee, A.**,Tudu, B. (2021): A Computer Vision Approach Towards Maturity Stage Classification of Tomatoes Using Second Order Wavelet Features. In: Proc. of International Conference on Data Science and Applications (ICDSA 2021), Kolkata, India. Accepted on March, 2021. To be published in Lect. Notes in Networks, Syst., Vol. 288, MukeshSaraswat et al. (Eds): Proceedings of International Conference on Data Science and Applications, 978-981-16-5119-9, 511142\_1\_En, (Chapter 10)

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Dr. Kanai Chandra Paul</b>	Jury Member	Print Olympiad	Kolkata, Mumbai	August-September,2020
<b>Mr. Soumen Basak</b>	Jury Member	Print Olympiad	Kolkata, Chennai	August-September,2020
<b>Prof. Dr. Kanai Chandra Paul</b>	Panel Member	A Technical Webinar on “Offset Printing Blanket Technology”	Kolkata	14 August, 2020

## Annual Report 2020-2021

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
1	B.E. Printing	M.E	IISC,Bengaluru
1	B.E. Printing	Ph.D.	IIM Kozhikode
4	B.E. Printing	M.Tech	Jadavpur University

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
GATE	1
CAT	1

## PRODUCTION ENGINEERING

Phone: 033-2457-2319/2587/2506

H.O.D : Sri Biplab Ranjan Sarkar

E-mail: hodproduction@jadavpuruniversity.in

### 1. Vision and Mission of the Department :

#### A. Vision:

The Production Engineering Department strives to be recognized globally for providing outstanding yet affordable technical education and will be one of the world's top ranking Departments in the field of Production Research.

#### B. Mission:

- To impart quality education to the students and enhancing their skills to make them globally competitive production engineers.
- To create and maintain vital, state of the art research facilities to support world class research.
- To develop linkages with reputed R&D organizations, educational institutions and industries in India and abroad for excellence in teaching and research.
- To promote cooperation and moral values and support for the environmental, social, and cultural needs. The department will expand access to underserved learners and provide professional service that complements the departments teaching and research functions.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B. Prod. E.	4 Years	1 <sup>st</sup> year	51
		2 <sup>nd</sup> year	54
		3 <sup>rd</sup> year	46
		4 <sup>th</sup> year	44
M. Prod. E.	2 Years	1 <sup>st</sup> year	13
		2 <sup>nd</sup> year	12

## Annual Report 2020-2021

Ph.D. (Engg.)		
---------------	--	--

### 3. Faculty Members in the Department: 11

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
9	2	0	10

### 4. Research Activities:

#### A. Areas of Research Activities:

Advanced manufacturing technology, Micromachining Processes, Intelligent micro-manufacturing, Metrology, Robotics, Flexible manufacturing systems (FMS), CAD, CAM, CIM, Robotics, Mechatronics, Artificial Intelligence, Concurrent Engineering, Reverse Engineering, Rapid Response Manufacturing, Total Quality Management, Multi-Criteria Decision Making (MCDM), Ergonomics, Data Analytics, Simulation, Production and Operations management, Tribology and Terotechnology, Management in Information Systems (MIS), ERP and Decision support system (DSS).

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Intelligent micro-manufacturing	CAS Ph-V, Departmental	Prof. B. Sarkar	UGC, New Delhi	

#### C. Doctoral Research Activities

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
7	5

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

1. Kunar, S., Bhattacharyya, B., Influence of Various Pulse Waveforms during Fabrication of Micro Rectangular Pattern by Masked Tool using Electrochemical Micromachining, Journal of Advanced Manufacturing Systems, 20(1), pp. 27–50, 2021.
2. Mishra, K., Gupta, S., Bhattacharyya, B., Problematic areas in micro-electrochemical milling of HSTR alloys, International Journal of Advanced Manufacturing Technology, 111(3-4), pp. 1015–1036, 2020.
3. Tayade, R.M., Doloi, B., Sarkar, B.R., Bhattacharyya, B., Micro-Hole Drilling on Ti6Al4V by Sequential Electro-Micro-Machining (SEMM) Approach, Journal of Advanced Manufacturing Systems, 19(3), pp. 499–516, 2020.
4. Maity, S., Debnath, S., Bhattacharyya, B., Modeling and investigation on multi-wire electrochemical machining (MWECM) assisted with different flushing strategies, Journal of Manufacturing Processes, 57, pp. 857–870, 2020.
5. Sen, A., Doloi, B., Bhattacharyya, B., Parametric influences of fiber laser micro-machining for the generation of micro-channels on PMMA, Journal of the Brazilian Society of Mechanical Sciences and Engineering, 42(8), 429, 2020.

## Annual Report 2020-2021

6. Mahata, S., Bhattacharyya, B., Experimental Investigation Into Micro-Textured Surface Generation by Through-Mask Electrochemical Micromachining, *Surface Engineering and Applied Electrochemistry*, 56(4), pp. 440–452, 2020.
7. Mallick, B., Biswas, S., Sarkar, B.R., Doloi, B., Bhattacharyya, B., On performance of electrochemical discharge micro-machining process using different electrolytes and tool shapes, *International Journal of Manufacturing, Materials, and Mechanical Engineering*, 10(2), pp. 49–63, 2020.
8. Biswas, O.F., Sen, A., Kibria, G., Doloi, B., Bhattacharyya, B., Fibre laser spiral microgrooving of aluminium, *Lasers in Engineering*, 47(4), pp. 233–248, 2020.
9. Kunar, S., Rajkeerthi, E., Mandal, K., Bhattacharyya, B., Fabrication of array of micro circular impressions using different electrolytes by maskless electrochemical micromachining, *Manufacturing Review*, 7, 15, 2020.
10. Kunar, S., Bhattacharyya, B., Fabrication of cascade micropattern by maskless electrochemical micromachining, *International Journal of Machining and Machinability of Materials*, 22(3-4), pp. 233–247, 2020.
11. Mallick, B., Hameed, A.S., Sarkar, B.R., Doloi, B., Bhattacharyya, B., Experimental investigation for improvement of micro-machining performances of m-ECDM process, *Materials Today: Proceedings*, 27, pp. 620–626, 2020.
12. Maity, P., Sarkar, B., An exploratory analysis for erosion wear behavior of filler materials of hybrid composites: A De Novo approach, *Measurement: Journal of the International Measurement Confederation*, 166, 108232, 2020.
13. Nath, S., Sarkar, B., An Integrated Fuzzy Group Decision Support Framework for Performance Assessment of Advanced Manufacturing Technologies: An Eclectic Comparison, *Journal of The Institution of Engineers (India): Series C*, 101(3), pp. 473–491, 2020.
14. Paul, S., Sarkar, B., An exploratory analysis of biofuel under the utopian environment, *Fuel*, 262, 116508, 2020.
15. Nath, S., Sarkar, B., An Integrated Cloud Manufacturing Model for Warehouse Selection in a Smart Supply Chain Network: A Comparative Study, *Journal of The Institution of Engineers (India): Series C*, 101(1), pp. 25–41, 2020.
16. Jana, S., Parekh, R., Sarkar, B., A De novo approach for automatic volume and mass estimation of fruits and vegetables, *Optik*, 200, 163443, 2020.
17. Das, S.K., Dutta, A.K., Debnath, S.K., Operative Critical Point Bug algorithm-local path planning of mobile robot avoiding obstacles, *Indonesian Journal of Electrical Engineering and Computer Science*, 2020, 18(3), pp. 1646–1656
18. Chakraborty, S., Kumar, V., Development of an intelligent decision model for non-traditional machining processes, *Decision Making: Applications in Management and Engineering*, 4(1), pp. 194–214, 2021.
19. Agarwal, S., Chakraborty, S., Prasad, K., Chakraborty, S., A Rough Multi-Attributive Border Approximation Area Comparison Approach for Arc Welding Robot Selection, *Jordan Journal of Mechanical and Industrial Engineering*, 15(2), pp. 169–180, 2021.
20. Bhattacharyya, S., Protim Das, P., Chatterjee, P., Chakraborty, S., Prediction of Responses in a Sustainable Dry Turning Operation: A Comparative Analysis, *Mathematical Problems in Engineering*, 2021, 9967970, 2021.
21. Das, P.P., Chakraborty, S., Multi-response Optimization of Hybrid Machining Processes Using Evaluation Based on Distance from Average Solution Method in Intuitionistic Fuzzy Environment, *Process Integration and Optimization for Sustainability*, 4(4), pp. 481–495, 2020.
22. Das, P.P., Chakraborty, S., Application of Superiority and Inferiority Multi-criteria Ranking Method for Parametric Optimization of Laser Cutting Processes, *Process Integration and Optimization for Sustainability*, 4(4), pp. 409–427, 2020.
23. Kumar, V., Das, P.P., Chakraborty, S., Grey-fuzzy method-based parametric analysis of abrasive water jet machining on GFRP composites, *Sadhana - Academy Proceedings in Engineering Sciences*, 45(1), 106, 2020.

## Annual Report 2020-2021

24. Agarwal, S., Chakraborty, S., Chakraborty, S., A DEMATEL-MABAC-based approach for grading and evaluation of jute fibers, *Research Journal of Textile and Apparel*, 24(4), pp. 341–355, 2020.
25. Chattopadhyay, R., Chakraborty, S., Chakraborty, S., An integrated d-marcos method for supplier selection in an iron and steel industry, *Decision Making: Applications in Management and Engineering*, 3(2), pp. 49–69, 2020.
26. Chakraborty, S., Ghosh, S., Sarker, B., Chakraborty, S., An integrated performance evaluation approach for the Indian international airports, *Journal of Air Transport Management*, 88, 101876, 2020.
27. Diyaley, S., Aditya, A., Chakraborty, S., Optimization of the multi-hole drilling path sequence for concentric circular patterns, *OPSEARCH*, 57(3), pp. 746–764, 2020.
28. Das, P.P., Chakraborty, S., Lexicographic method-based parametric optimization of non-traditional machining processes for ceramic materials, *OPSEARCH*, 57(3), pp. 700–715, 2020.
29. Kumar, V., Diyaley, S., Chakraborty, S., Teaching-learning-based parametric optimization of an electrical discharge machining process, *FactaUniversitatis, Series: Mechanical Engineering*, 18(2), pp. 281–300, 2020.
30. Yazdani, M., Pamucar, D., Chatterjee, P., Chakraborty, S., Development of a decision support framework for sustainable freight transport system evaluation using rough numbers, *International Journal of Production Research*, 58(14), pp. 4325–4351, 2020.
31. Yazdani, M., Chatterjee, P., Pamucar, D., Chakraborty, S., Development of an integrated decision making model for location selection of logistics centers in the Spanish autonomous communities, *Expert Systems with Applications*, 148, 113208, 2020.
32. Diyaley, S., Chakraborty, S., Metaheuristics-based parametric optimization of multi-pass turning process: a comparative analysis, *OPSEARCH*, 57(2), pp. 414–437, 2020.
33. Das, P.P., Chakraborty, S., Parametric analysis of a green electrical discharge machining process using DEMATEL and SIR methods, *OPSEARCH*, 57(2), pp. 513–540, 2020.
34. Chatterjee, P., Panchal, D., Chakraborty, S., A developed meta-model for biomaterials selection, *Trends in Biomaterials and Artificial Organs*, 34(1), pp. 20–32, 2020.
35. Ramakrishnan, K.R., Chakraborty, S., A cloud topsis model for green supplier selection, *Facta Universitatis, Series: Mechanical Engineering*, 18(3), pp. 375–397, 2020.
36. Agarwal, S., Dandge, S.S., Chakraborty, S., A support vector machine-based prediction model for electrochemical machining process, *Karbala International Journal of Modern Science*, 6(2), pp. 164–174, 2020.
37. Agarwal, S., Dandge, S.S., Chakraborty, S., Parametric analysis of a grinding process using the rough sets theory, *FactaUniversitatis, Series: Mechanical Engineering*, 18(1), pp. 91–106, 2020.
38. Chatterjee, S., Chakraborty, S., Material selection of a mechanical component based on criteria relationship evaluation and MCDM approach, *Materials Today: Proceedings*, 44, pp. 1621–1626, Elsevier, 2214-7853, January 2021.
39. Mondal, A., Roy, P., Mitra, S., Experimental investigation on electro discharge machining of Ti6Al4V alloy, *Advances in Materials and Processing Technologies*, 7(2), pp. 262–272, 2021.
40. Pramanik, D., Kuar, A.S., Sarkar, S., Mitra, S., Optimisation of edge quality on stainless steel 316L using low power fibre laser beam machining, *Advances in Materials and Processing Technologies*, 7(1), pp. 42–53, 2021.
41. Pramanik, D., Kuar, A.S., Sarkar, S., Mitra, S., Evaluation of sawing approach of hole quality characteristics in low power fiber laser trepan drilling of monel k-500 superalloy sheet, *Optik*, 224, pp 1-12, 2020.
42. Pramanik, D., Kuar, A., Sarkar, S., Mitra, S., An experimental study of geometrical characteristic in low power fiber laser drilling of Monel k-500 superalloy, *Materials Today: Proceedings*, 26, pp689-695, 2020.
43. Pramanik, D., Kuar, A.S., Sarkar, S., Mitra, S., Enhancement of sawing strategy of multiple surface quality characteristics in low power fiber laser micro cutting process on titanium alloy sheet, *Optics and Laser Technology*, 122, pp 2-14, 2020.

## Annual Report 2020-2021

44. Mandal, K., Sarkar, S., Mitra, S., Bose, D., Surface roughness and surface topography evaluation of Al 6065-T6 alloy using wire electro-discharge machining (wire EDM), *Advances in Materials and Processing Technologies*, 6(1), pp. 75–83, 2020.
  45. Chakraborty, S., Mitra, S., Bose, D., Performance Analysis on Eco-friendly Machining of Ti6Al4V using Powder Mixed with Different Dielectrics in WEDM, *International Journal of Automotive and Mechanical Engineering*, 17(3), pp. 8128–8139, 2020.
  46. Mandal, K., Bose, D., Mitra, S., Sarkar, S., Experimental investigation of process parameters in WEDM of Al 7075 alloy, *Manufacturing Review*, 7, 30, 2020.
  47. Pramanik, D., Kuar, A.S., Sarkar, S., Mitra, S., Effects of cutting angle on multiple quality characteristics for the microcutting of thin 316L stainless steel using a low power fiber laser, *Lasers in Engineering*, 45(1-3), pp. 109–131, 2020.
  48. Das, S., Paul, S., Doloi, B., Feasibility assessment of some alternative dielectric mediums for sustainable electrical discharge machining: a review work, *Journal of the Brazilian Society of Mechanical Sciences and Engine*2(4), 148, 2020.
  49. Das, S., Paul, S., Doloi, B., Feasibility investigation of neem oil as a dielectric for electrical discharge machining, *International Journal of Advanced Manufacturing Technology*, 106(3-4), pp. 1179–1189, 2020.
  50. Bera, A.K., Jana, D.K., Banerjee, D., Nandy, T., Multi-item two warehouse inventory model for deteriorating item under partial credit period via contractive mapping genetic algorithm and PSO, *International Journal of Logistics Systems and Management*, 38(4), pp. 425–458, 2021.
  51. Kar, N.B., Ghosh, A., Das, S., Banerjee, D., Fuzzy multi-criteria group decision making approach for grading of mulberry silk cocoons, *Indian Journal of Fibre and Textile Research*, 45(2), pp. 177–182, 2020.
  52. Bera, A.K., Jana, D.K., Banerjee, D., Nandy, T., Supplier selection using extended IT2 fuzzy TOPSIS and IT2 fuzzy MOORA considering subjective and objective factors, *Soft Computing*, 24(12), pp. 8899–8915, 2020.
  53. Acherjee, B., Maity, D., Kuar, A.S., Optimization of correlated and conflicting responses of ECM process using flower pollination algorithm, *International Journal of Applied Metaheuristic Computing*, 11(4), pp. 1–15, 2020.
  54. Acherjee, B., Maity, D., Kuar, A.S., Ultrasonic machining process optimization by cuckoo search and chicken swarm optimization algorithms, *International Journal of Applied Metaheuristic Computing*, 11(2), pp. 1–26, 2020.
  55. Pramanik, D., Mandal, A., Kuar, A.S., An experimental investigation on improvement of surface roughness of ABS on fused deposition modelling process, *Materials Today: Proceedings*, 26, pp860-863, 2020.
  56. Kumar, D., Ghosh, S., Kuar, A.S., Paitandi, S., Laser transmission welding of thermoplastic with beam wobbling technique using particle swarm optimization, *Materials Today: Proceedings*, 26, pp 808-813, 2020.
  57. Roy, N; Biswas, S; Kuar, AS; Pulsed Nd: YAG laser percussion microdrilling of SiC-30BN nanocomposite with compressed air as assisted medium, *Materials Today: Proceedings*, 26, pp 979-984, 2020.
  58. Biswas, S; Mandal, K; Roy, N; Biswas, R; Kuar, AS; Study on kerf width deviation of microchannel with various medium in laser transmission cutting by diode pump fiber laser, *Materials Today: Proceedings*, 26, pp804-807, 2020.
  59. Acherjee, Bappa; Maity, Debanjan; Kuar, Arunanshu S; Optimization of Correlated and Conflicting Responses of ECM Process Using Flower Pollination Algorithm, *International Journal of Applied Metaheuristic Computing (IJAMC)*, 11(4), pp 1-15, 2020 ering
- E. Research Articles Published in Edited Volumes during the year:**  
(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

## Annual Report 2020-2021

1. B. Doloi, S. Kumar, S. Das, B. Bhattacharyya, Strategies for Improving Performance of Ultrasonic Micromachining Process, Accuracy Enhancement Technologies for Micromachining Processes, GolamKibria, B. Bhattacharyya, 23-45, Springer, Singapore, 978-981-15-2116-4/ 978-981-15-2117-1, 2020.
2. Rathod, V., Doloi, B., Bhattacharyya, B., Accuracy Improvement Techniques in Electrochemical Micromachining (EMM), Accuracy Enhancement Technologies for Micromachining Processes, GolamKibria, B. Bhattacharyya, 149-164, Springer, Singapore, 978-981-15-2116-4/ 978-981-15-2117-1, 2020.
3. GolamKibria, B. Doloi, B. Bhattacharyya, Improvement in Surface Finish and Geometrical Accuracy by Laser Micro-turning, Accuracy Enhancement Technologies for Micromachining Processes, Golam Kibria, B. Bhattacharyya, 121-147, Springer, Singapore, 978-981-15-2116-4/ 978-981-15-2117-1, 2020.

**F. Research Articles Published in Conference Proceedings during the year:  
(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**

1. Tiwary, A.P., Chakraborty, S., Pradhan, B.B., Bhattacharyya, B., Improvement in micro-EDM characteristics using rotational electrode during micro through hole machining on Ti-6Al-4V, AIP Conference Proceedings, 2273, 050067, 978-073544003-6/ 0094243X, AIP Publishing, November 2020.
2. Sen, K., Ghosh, S., Sarkar, B., An integrated approach for performance evaluation of healthcare industry with proposed agile policy framework, *Proceedings of the International Conference on Industrial Engineering and Operations Management*, pp 1062 – 1073, IEOM Society, 978-179236124-1/ 21698767, March 2021.
3. Das, S.K., Roy, K., Pandey, T., Dutta, A.K., Debnath, S.K., Modified Critical Point - A Bug Algorithm for Path Planning and Obstacle Avoiding of Mobile Robot, Proceedings of the 2020 IEEE International Conference on Communication and Signal Processing (ICCSP 2020), pp. 351–356, 978-1-7281-4989-9/ 978-1-7281-4988-2, IEEE, July 2020.
4. Ramani, J., Dandge, S., Chakraborty, S., Machinability study of plain carbon steels using data mining technique, AIP Conference Proceedings, 2273, 050005, 978-073544003-6/ 0094243X, AIP Publishing, November 2020.
5. Diyaley, S., Chakraborty, S., Optimization of electrochemical machining process parameters using teaching-learning-based algorithm, AIP Conference Proceedings, 2273, 050010, 978-073544003-6/ 0094243X, AIP Publishing, November 2020.
6. Babu, J., Kumar, D., James, A., Paul, L., Chakraborty, S., Application of multivariate loss function and distance function approaches for materials selection, AIP Conference Proceedings, 2273, 050015, 978-073544003-6/ 0094243X, AIP Publishing, November 2020.
7. Das, P.P., Kumar, S., Chakraborty, S., Fuzzy modeling and parametric analysis of wire-cut electrical discharge machining process in cutting of 2205 grade duplex stainless steel, AIP Conference Proceedings, 2273, 050033, 978-073544003-6/ 0094243X, AIP Publishing, November 2020.
8. Das, P.P., Sharma, S., Ladakhi, T.Y., Pradhan, B.B., Chakraborty, S., A hybrid optimization approach for parametric optimization of wire electrical discharge machining of EN-8 carbon steel, AIP Conference Proceedings, 2273, 050044, 978-073544003-6/ 0094243X, AIP Publishing, November 2020.
9. Das, P.P., Chatterjee, S., Singh, Y., Shivakoti, I., Chakraborty, S., A Taguchi based super ranking method in parametric optimization of powder mixed electro-discharge machining processes, AIP Conference Proceedings, 2273, 050050, 978-073544003-6/ 0094243X, AIP Publishing, November 2020.
10. Paul, S., Duggirala, A., Mitra, S., Study of Laser Beam Welding of AA 2024 Using Taguchi Methodology, Proceedings - 2020 IEEE India Council International Subsections Conference, INDISCON 2020, pp. 248–253, 978-1-7281-8735-8/ 978-1-7281-8734-1, IEEE, Oct. 2020.
11. Bera, A.K., Jana, D.K., Banerjee, D., Nandy, T., A Decision-Making Framework for Green Supplier Selection Using FAHP and Taguchi Quality Loss Functions, Proceedings of the Fifth International

## Annual Report 2020-2021

Conference on Mathematics and Computing, pp137-154, 978-981-15-5411-7, Springer, Singapore, 2020.

12. Gajbhiye, M.T., Banerjee, D., Nandi, S., Postural Evaluation of Construction Labourers Engaged in Excavation Work Using Newly Developed NERPA Method and Its Validation Through REBA and WERA Methods, Advances in Mechanical Engineering-Proceedings of the International Conference on Advances in Mechanical Engineering (ICAME 2020), 253–261, 978-981-15-3639-7/ 978-981-15-3641-0, Springer, Singapore, 2020.

**G. Patents Granted/ Published/ Filed during the year:**

Name of the Inventors	Title of the Patent	National/ International	Status Granted/ Published/ Filed	Patent Number	Date of Publication
<b>Prof. Bijoy Bhattacharyya, Prof. B. Doloi, Dr. V. Rathode</b>	Disc microtool fabrication by electrochemical micromachining for generation of microfeatures	National	Granted	359160	23/2/2021

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/ Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Crescendo in Pedagogy, Andragogy & Heutagogy	Prof. B. Sarkar, CAS Ph-V, Prod. Engg. Department		In virtual mode through Google Meet	30 March, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. B. Bhattacharyya</b>	Invited Lecture on “micro-machining new challenges”	One week Short term course on Advanced Manufacturing Processes (AMP-2020)	Mechanical Engg. Dept., NIT Manipur	18 November, 2020
<b>Prof. B. Bhattacharyya</b>	Invited Lecture on “micro-machining challenges and opportunity”	Industry and Academia Conclave	Mechanical Engg. Dept., Punjab Engg. College and University. Chandigarh	11 December, 2020



## Annual Report 2020-2021

<b>Prof. B. Doloï</b>	Expert lectures on “Laser Micro-Machining Processes for Advanced Manufacturing” and on “An Overview on Non-Traditional Manufacturing: Advanced, Micro & Hybrid Machining”	STTP on Sustainable Manufacturing and Advancement in Non-Traditional Machining Approaches	Mechanical Engg. Dept., NIT Agartala	2020
<b>Prof. B. Doloï</b>	Expertlectures on “An Overview on Hybrid Machining Processes” and on “Laser Micro-Machining for Advanced Materials Processing”	QIP STC on Recent Advances in Materials Processing and Materials Tribology	Mechanical Engg. Dept., IIT BHU Varanasi	2020
<b>Prof. A.S. Kuar</b>	Invited lecture on “Optimization Techniques: Recent Trends & Applications in Engineering”	Online AICTE Sponsored Short Term Training Program (STTP- Six days)	Mechanical Engineering department of MCKV Institute of Engineering, Liluah, W.B.	6 October, 2020

**6. Major Achievements of the Department during the year:**

**B. Any other Honours received by the Faculty Members:**

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
<b>Prof. B. Bhattacharyya</b>	‘World Ranking top 2%’ in Industrial Engineering	Stanford University, USA	
<b>Prof. S. Chakraborty</b>	‘World Ranking top 2%’ in Operations research	Stanford University, USA	

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
08	44	08	08

**B. Qualifying in State/ National/ International Level Examinations**

Name of the Examination	No. of students selected/ qualified
GATE	07
CAT	01

**FACULTY COUNCIL OF SCIENCE:  
DEPARTMENTS**

## Annual Report 2020-2021

### CHEMISTRY

Phone: 033-2457-2267/2109  
(organic)-2104 (inorganic)- 2295 (physical)-2458  
(Analytical Chemistry)-2453  
(Chem. Engg. Buildng)- 2547  
HOD: Prof. Chittaranjan Sinha  
Prof. Swapan Kr. Bhattacharya (since 6.2.2021)

#### 1. Vision and Mission of the Department:

##### A. Vision:

- Our vision is to enhance our reputation as one of the top national Departments for class of teaching and research, innovation, excellence and discovery which attract the best students & staff worldwide.
- Collaboration and team work in many shapes and forms are at the heart of our work and vision.
- Our vision is based on the highest professional and academic standards in terms of personal growth and satisfaction offered to our staff and students. Our team Work is based on respect, trust, integrity and innovation to promote and value of our research sponsors / society.
- The Department is committed to fostering a respectful workplace. We strive to cultivate a safe, inclusive & fair environment.

##### B. Mission:

- To progress and advance the global understanding of Chemistry and to use the knowledge to address the major challenges for society.
- To contribute to society through the pursuit of education, learning & research at the highest international level.
- Our mission is to maintain a department that is regarded as equal to any in terms of its relevance of teaching and research, its quality of support and facilities and the learning opportunities and working experience it offers.

#### 2. Academic Activities:

##### D. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B. Sc. Chemistry (Honours)	3	1 <sup>st</sup> year	27
		2 <sup>nd</sup> year	56
		3 <sup>rd</sup> year	45
M. Sc. Chemistry (CBCS)	2	1 <sup>st</sup> year	47
		2 <sup>nd</sup> year	44
M. Sc. Chemistry(Evening)	3	1 <sup>st</sup> year	37
		3 <sup>rd</sup> year	35
Ph.D (Science) Course work	1/2		48

##### E. New Programme /Course introduced during the year by the Department:

Programme Name	Course Name	Date of Introduction	No. of Students enrolled
M.Sc in Chemistry	PG (CBCS)	9/10/2020	44

#### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	

## Annual Report 2020-2021

28	5	9	41
----	---	---	----

#### 4. Research Activities:

##### A. Areas of Research Activities:

###### **Dr. Amrita Saha**

Inorganic Chemistry

###### **Dr. Arunabha Thakur**

Organometallic Synthesis, Molecular Recognition, and DTE based photochromic materials

###### **Prof. Ambikesh Mahapatra**

Kinetic and mechanistic studies of ligand substitution reactions of platinum group metal complexes of anti-cancer property, reduction reactions of transition metal complexes by different reducing agents of biochemical importance in different micellar & reverse micellar environments. Kinetic and Spectroscopic investigations on effect of nanoparticle, polymer-surfactant interaction & mixed micelles on redox & hydrolytic reactions involving transition metal complexes.

###### **Dr. Arup Gayen**

Synthesis and development of novel nanostructured oxide based materials for the production of hydrogen for fuel cell applications via reforming reactions including methanol steam reforming (MSR), dry and steam reforming of methane (DRM & SRM); Photocatalytic dye degradation; Catalytic transformations of small organic molecules; Heterogeneous catalysis for the abatement of environmental pollution

###### **Dr. Asamanjoy Bhunia**

Development and application of "Functional Inorganic and Organic Porous Materials". We mainly investigate the following applications for our materials: (1) gas adsorption and separation, (2) photocatalytic and electrocatalytic water splitting and CO<sub>2</sub> reduction, (3) Catalytic organic transformations, (4) energy storage

###### **Dr. Bibhuti Bhushan Show**

Thin film semiconductors: Synthesis, Characterization and their applications in the field of Photoelectrochemical Cells (PEC) (Solid-Liquid junctions), Solar Cells (Solid-Solid junctions), Photochemical Catalysis, Electrocatalysis, Photo-Switching device fabrication and energy storage device.

###### **Dr. Biplab Bhattacharjee**

Theoretical and Molecular dynamics simulation studies of nearest neighbor distribution functions for interacting single component and multi-component fluids.

###### **Dr. Chandan Kumar Mondal**

Dynamical study of real and model quantum system. During this period we would focus on the problems that arise due to measurement (Zeno and anti-Zeno effects) of dynamical properties of a quantum system during its evolution. The effects have been measured on vibrational population transfer and photodissociation of HBr<sup>+</sup> in the context of pulse shape and the time interval of measurement. It has been explored through probable mechanism of population transfer from the ground vibrational state to the different upper vibrational states which ultimately go to the dissociation continuum. The results show significant differences in the mechanism of population transfer and the significant role of time interval of measurement ( $\tau$ ) in Zeno and anti-Zeno effects.

###### **Dr. Chittaranjan Sinha**

## Annual Report 2020-2021

Coordination Chemistry, Design of  $\pi$ -conjugated aromatics, Ion and molecular Sensor, Metal Organic Framework, Photoluminescence, Electrochemistry, Computation

### **Dr. Debajyoti Ghoshal**

Metal Organic Frameworks and Molecular materials

### **Prof. Jnan Prakash Naskar**

Electrochemistry, Bioinorganic Chemistry and Coordination Chemistry.

### **Dr. Kausikisankar Pramanik**

Exploration of the Importance of non-innocent ligands in Coordination Chemistry

### **Prof. Kajal Krishna Rajak**

The primary interest is the designing and synthesis of model complexes using different kinds of ligands. Characterization of new complexes using different analytical techniques and investigation of their structure, spectroscopic, redox properties, reactivity studies, magnetic measurements and theoretical calculations constitute the major areas of his research activities.

### **Dr. Manas Kumar Panda**

1. Stimuli-responsive smart materials
2. Light-fueled macroscopic actuation in molecular systems

### **Professor Nitin Chattopadhyay**

Photochemistry, Biophysical chemistry, Surface chemistry, Steady-state and time-resolved fluorometric study of various photophysical and photochemical processes in homogeneous as well as microheterogeneous environments, Binding of drugs with relevant biological targets like proteins, DNA etc., Fluorescence sensing, Polymer photophysics, Theoretical modeling and simulations of photophysical and/or photochemical observations.

### **Dr. Partha Pratim Parui**

Fluoresensing for detection of Biomolecule and biologically important anions and Biosystems analysis to detect interfacial physicochemical properties, such as pH, polarity etc.

### **Dr. Partha Roy**

Inorganic Chemistry

### **Dr. Partha Mahata**

Inorganic and Solid State Materials Chemistry

### **Dr. Pradip Kumar Mahapatra**

Biophysical Chemistry; Drug-protein interactions; Synthesis and modification of small peptides and their characterization; Photo-physical studies of N-heterocyclic carbene complexes.

### **Prof. Rina Ghosh**

Synthesis of carbohydrates, Studies on chemosensors.

### **Prof. Samaresh Bhattacharya**

Coordination chemistry, Bio-inorganic Chemistry, Organometallic chemistry, Catalysis

### **Dr. Samit Guha**

Organic and Biomolecular Chemistry; NIR Organic Dyes; Targeting and Imaging of Mitochondria and Lysosome, Solid Phase Peptide Synthesis; Transmembrane Peptide; Molecular Recognition and Sensing; Supramolecular Machines

## Annual Report 2020-2021

### **Prof. Sanjay Bhar**

Synthetic Organic Chemistry with an emphasis to develop novel reagents and improved methods for important organic transformations with an objective directed towards sustainability.

### **Satyadeep Waiba**

Synthetic Organic Chemistry, Catalysis, Asymmetric reactions.

### **Prof. Shouvik Chattopadhyay**

Inorganic Chemistry

### **Prof. Subrata Nath Koner**

Coordination Chemistry, Heterogeneous Catalysis, Molecular Magnetism

### **Dr. Sujoy Baitalik**

Photophysics and Photochemistry of Coordination Compounds  
Recognition and Sensing of Selected Ions

### **Prof. Soumen Ghosh**

Surface and Biophysical Chemistry

### **Prof. Saurabh Das**

Bio-inorganic Chemistry, Chemical Biology

### **Prof. Swapan Kumar Bhattacharya**

Thermodynamics, Electrochemistry, Catalysis, Energy studies, Amperometric sensors, supercapacitors, electrochemical Cells

### **Dr. Tanurima Bhaumik**

Synthetic Organic Chemistry

### **Prof. Tapan Kumar Mondal**

- i. Synthesis and characterization of new redox non-innocent azoimine and diimine functionalized heterocyclic ligands and their transition metal complexes.
- ii. Coordination compound of transition metal ions with heterocyclic ligands and study their chemical reactivity through experiments and theoretical studies.
- iii. Synthesis of cyclometalated complexes of Platinum Group Metals (PGM) by C-H and C-S bond activation and exploration of their potential catalytic applications.
- iv. Development of new optical sensors for selective detection of metal ions, anions, reactive oxygen species and nerve agents.

### **Dr. Umesh Chandra Halder**

- a. Physico-chemical modifications of globular proteins and studies on their effect on protein folding and studies on molecular interactions during amorphous or amyloid fibril formation. Our study will be helpful to develop the molecules useful for prevention of protein aggregation responsible for different neurodegenerative diseases like Parkinson and Alzheimer's diseases.
- b. Studies on interactions of proteins with small molecules including different drugs, nucleic peptides and natural and synthetic antioxidants.
- c. Purification, characterization and structure determination of novel serine proteases and their protein inhibitors for their commercial applications.

## Annual Report 2020-2021

- d. Developments of nanoparticles based system and their influence on structure, function and aggregation of proteins and also the targeted drug deliver.
- e. Purification and structure determination of a silica leaching protein” Bioremediase, a unique protein from a novel bacterium BhKI, ushering a new hope in concrete technology”-

### B. Major Research Projects:

#### Dr. Arunabha Thakur

Sponsors	Title of the project	Duration	Amount
DST-Inspire	Synthesis and characterization of carbene stabilized mixed binary pnictogens for small molecule activation	2015-2021	35 Lakhs
CSIR	Stimuli-Responsive Boron-doped Conjugated Oligomers, Polymers, and Macrocycles and Their Applications	2018-2021	6 Lakhs
WB-DST	Conversion of Carbon dioxide to Most Promising Synthetic Fuels by Organocatalyst	2018-2021	2.4 Lakhs

#### Dr. Arup Gayen

Individual centric DST SERB sponsored project “Tailored nanostructure and nanocomposite oxide materials for steam and dry reforming of methane” (File No. EMR/2016/001811 dated 26.12.2016) Rs. 61.25 L

#### Dr. Asamanjoy Bhunia

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Development of Microporous Materials as Heterogeneous Catalysts for Photocatalytic and Electrocatalytic Conversion of CO <sub>2</sub>	Individual	Dr. Asamanjoy Bhunia	SERB	3 years
Development of Metal–Organic Framework (MOF) Photocatalysts for Light-Driven Hydrogen Evolution	Individual	Dr. Asamanjoy Bhunia	UGC-BSR Research Start-Up-Grant	2 Years

#### Dr. Debajyoti Ghoshal

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Design of entangled dynamic metal organic frameworks for hydrogen storage property	Individual	Debajyoti Ghoshal	DST-SERB	October 2018 to June 2022
Synthetic strategies for the design of porous coordination polymers for preferred adsorption of different gases	Individual	Debajyoti Ghoshal	West Bengal DST	March 2018 to December 2021

## Annual Report 2020-2021

--	--	--	--

### Dr. Kausikisankar Pramanik

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Exploration of Subtle Influence of $\pi$ -acidity of Organic Molecules towards Electron transfer, Electronic Transition and Electronic Structure in Metal-Organic hybrids	CHEMISTRY/ Individual	<b>Kausikisankar Pramanik</b>	RUSA 2.0	1 April, 2019 – 31 December, 2020

### Dr. Manas Kumar Panda

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Design, Synthesis and Applications of Photo-Switchable Solid-State Optical Materials	Individual	<b>Dr. Manas Kumar Panda</b>	SERB India	2 years (December 2020- December 2022)

### Professor Nitin Chattopadhyay

<b>Title of the Project</b>	Unusual fluorescence anisotropies of probes in protic solvents: A new horizon towards solvation.
<b>Type (Departmental/Individual)</b>	Individual
<b>Project no.</b>	EMR/2016/001087
<b>Funding Agency</b>	DST-SERB, Govt. of India.
<b>Duration</b>	23.12.2016 – 22.06.2020

### Dr. Partha Roy

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
New chemosensors for small ions	Individual	Partha Roy	CSIR, New Delhi	2019-2022

### Dr. Partha Mahata

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Investigation on Synthesis, Structure and Luminescence based Sensing Properties of Rare-Earth based Metal-Organic Frameworks Compounds	Individual	<b>Dr. Partha Mahata</b>	UGC	28.03.2019 to 27.03.2022



## Annual Report 2020-2021

### Prof. Rina Ghosh

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Synthesis of oligosaccharides and glycoconjugates related to <i>Salmonella</i> O-antigens with special reference to one-pot glycosylation reactions	Individual	Rina Ghosh	CSIR	05/05/2018 to 04/05/2021

### Prof. Samaresh Bhattacharya

CSIR Project:Sanction No. 01(2994)/19/EMR-II

Title:Formation and utilization of ruthenium (0) species for radical generation, C-X (X = H or halogen) activation and catalytic application

### Dr. Samit Guha

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Molecular Recognition and Sensing at the Lipid Bilayer-Water Interface and Inside the Lipid Membrane	Individual Principal Investigator (Rs 4604000)	Dr. Samit Guha, Assistant Professor, Department of Chemistry, Organic Chemistry Section Jadavpur University, Kolkata-700032, E-mail: samitfsu@gmail.com; samit.guha@jadavpuruniversity.in	DST-SERB Early Career Award, Government of India, FILE NO. ECR/2017/001405	3 Years

### Prof. Subranath Koner

1. CSIR: Chiral Induction into Metal-Organic Frameworks for Heterogeneous Asymmetric Catalysis
2. SPARC (MHRD) Project: Single Molecule Magnets and Molecular Magnetic Coolers from Lanthanide-based Metal-Organic Framework Materials (Indian Co-PI, Indo-Japanese Project)

### Dr. Sujoy Baitalik

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Design of Multichannel Receptors for Anions by Taking Profit of Metal-Ligand Interaction	Individual	Sujoy Baitalik	CSIR (Project No: 01(2945)/18/E MR-II)	3 years (01.06.2018 - 31.05.2021)
Design of Stimuli-Responsive Photochemical Molecular Switches based on Platinum Metals	Individual	Sujoy Baitalik	DST-SERB (File NO. CRG/2020/001233)	3 years (16.12.2020-Ongoing)

### Dr. Tanurima Bhaumik

## Annual Report 2020-2021

Title: "Rhodamine inspired Sulfonamides: Structure, Chemosensor and exploration of their biomaterial activity" has been sanctioned by the CSIR, New Delhi vide reference No. 01(2894)/09/EMR-II, dated 03.05.2017 for the period 01/06/2017 to 31/05/2020.

### Prof. Tapan Kumar Mondal

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Synthesis of new palladium and platinum complexes with azo/imine functional ligands: Exploration of potential catalytic and biological activity	Individual	Prof. Tapan Kumar Mondal	SERB, NEW DELHI	3 years (2019-2022)

### C. Doctoral Research :

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
15	42

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication):

#### Dr. Amit Saha

Sl. No.	Name of authors	Title of the article	Name of the Journal	Volume No.	Page No/Article No.	Year of publication
1.	Soumya Dutta, Amit Saha	Iodine mediated direct coupling of benzylic alcohols with dithiocarbamate anions: An easy access of S-benzyl dithiocarbamate esters under neat reaction condition	<i>Tetrahedron Letters</i>	61	152382	2020

#### Prof. Ambikesh Mahapatra

Biman Kumar Patel, Nayim Sepay, and Ambikesh Mahapatra, STRUCTURAL ALTERATION OF MYOGLOBIN WITH TWO HOMOLOGOUS CATIONIC SURFACTANTS AND EFFECT OF B-CYCLODEXTRIN: MULTIFACETED INSIGHT AND MOLECULAR DOCKING STUDY, *New J Chem*, **44**, 2020, p. 19555-19569

#### Dr. Amrita Saha

1. P. Ghorai, A. Dey, P. Brandão, S. Benmansour, C. J. G. García, P. P. Ray and A. Saha, Multifunctional Ni(II)-Based Metamagnetic Coordination Polymers for Electronic Device Fabrication, *Inorg. Chem.*, **59**, 8749–8761, 2020.

## Annual Report 2020-2021

2. P. Ghorai, P. Brandão, S. Benmansour, C. J. G. García and **A. Saha**, Azido and thiocyanato bridged dinuclearNi(II) complexes involving 8-aminoquinoline based Schiff base as blocking ligands: Crystal structures, ferromagnetic properties and magneto-structural correlations, *Polyhedron*, **188**,114708, 2020.
3. N. C. Jana, Z. Jaglicic, P. Brandão, S. Adak, **A. Saha** and A. Panja, A novel triple aqua-, phenoxo- and carboxylatobridgeddinickel(II) complex, its magnetic properties, and comparative biomimetic catalytic studies with analogous dinickel(II) complexes, *New J. Chem.*, **45**, 7602–7613, 2021.

### Dr. Arunabha Thakur

1. A Detailed Insight into Anion Sensing based on Intramolecular Charge Transfer (ICT) Mechanism: A Comprehensive Review of the Years 2016 to 2021, Adwitiya Pal, Manisha karmakar, Sushil Ranjan Bhatta, Arunabha Thakur  
*Coord. Chem. Rev.* **2021**, 448, 214167
2. Naphthol Based Positional Isomers of Ferrocene Appended Benzochromene: Differential Selectivity towards Hg(II) ion  
Sushil Ranjan Bhatta, Manisha Karmakar, Arunabha Thakur\* *J. Organomet. Chem.* 2021, 949, 121958-121968.
3. Light Triggered Metal Coordination Dynamics in PhotoswitchableDithienylethene-Ferrocene System.  
Manisha Karmakar, Adwitiya Pal, BijanMondal, Nayarassery N. Adarsh, Arunabha Thakur\* *Inorg. Chem.* **2021**, 60, 6086–6098.
4. Recent Advances in the Development of Ferrocene based Electroactive Small Molecules for Cation Recognition: A Comprehensive Review of the Years 2010-2020. Adwitiya Pal, Sushil Ranjan Bhatta, Arunabha Thakur  
*Coord. Chem. Rev.* **2021**, 431, 213685-213748.

### Dr. Arup Gayen

1. A. Haque, R. Das, D. Ghosh, M. Vasundhara\*, **A. Gayen**, A. K. Kundu, Md. M. Seikh\*, Observation of Predominant Long-Range Ordering by Overcoming the Magnetic Frustration in Cu-Doped  $\text{La}_2\text{MnCoO}_6$ , *Phys. Chem. Chem. Phys.*, **125**, 3088-3101 (2021).
2. D. Ghosh, R. Das, A. Haque, K. Ghorai, **A. Gayen**, P. Mahata, A. K. Kundu, Md. M. Seikh\*, Synthesis, Structure and Magnetic Properties of  $\text{La}_{1-x}\text{Ln}_x\text{Cr}_{0.5}\text{Co}_{0.5}\text{O}_3$  ( $x= 0$  and  $0.2$  &  $\text{Ln}= \text{Pr}$ ,  $\text{Sm}$  and  $\text{Gd}$ ) Perovskites, *J. Magn. Magn. Mater.*, 523 (2021) Art. No. 167621.
3. M. Chakraborty, K. K. Bera, M. Mandal, K. Ghorai, N. Sepay, M. R. Das, S. Roy Chowdhury, **A. Gayen**, S. K. Bhattacharya\*, Visible Light assisted Photo-electrocatalytic Oxidation of Methanol using Low Pt content NiO Rutile TiO<sub>2</sub> Ternary Heterojunction, *Appl. Surf. Sci.*, 541 (2021) Art. No. 148450.
4. K. Ghorai, M. Bhattacharjee, D. Mandal, A. Hossain, T. Bhunia, M. Das, P. P. Ray, B. Show, P. Bera, T. K. Mandal, Md. M. Seikh\*, **A. Gayen**\*, Facile synthesis of  $\text{CuCr}_2\text{O}_4/\text{BiOBr}$  composite and its photocatalytic activity towards RhB and tetracycline hydrochloride degradation under household visible LED light irradiation, *J. Alloy. Compd.*, 867 (2021) Art. No. 157947.
5. R. V. Lakshmi\*, P. Bera\*, K. Pal, V. Alwera, **A. Gayen**, T. K. Mandal, S. T. Aruna\*, Effect of cerium oxide nanostructures on CO oxidation, *J. Nanosci. Nanotechnol.*, 21, 1641-1652 (2021).
6. K. Pal, A. Mukherjee, Md. M. Seikh, P. Bera\*, **A. Gayen**\*, Synthesis, structure, CO oxidation, and H<sub>2</sub> production activities of  $\text{CaCu}_{3-x}\text{Mn}_x\text{Ti}_{4-x}\text{Mn}_x\text{O}_{12}$  ( $x = 0, 0.5, \text{ and } 1.0$ ), *Ceramics International*, 47 (2021) 14798–14808.
7. K. Ghorai, A. Panda, M. Bhattacharjee, D. Mandal, A. Hossain, P. Bera, Md. M. Seikh\*, **A. Gayen**\*, Facile synthesis of  $\text{CuCr}_2\text{O}_4/\text{CeO}_2$  nanocomposite: A new Fenton like catalyst with domestic LED light assisted improved photocatalytic activity for the degradation of RhB, MB and MO dyes, *Appl. Surf. Sci.*, 536 (2021) Art. No. 147604.
8. A. Haque, R. Das, D. Ghosh, O. I. Lebedev, **A. Gayen**, A. K. Kundu, Md. M. Seikh\*, Unravelling the role of Bi-substitution on vibronic ferromagnetism in  $\text{La}_{2-x}\text{Bi}_x\text{MnCoO}_6$  ( $x = 0, 0.5$  and  $1$ ), *J. Magn. Magn. Mater.*, 514 (2020) Art. No. 167159.

## Annual Report 2020-2021

### Dr. Asamanjoy Bhunia

Covalent Triazine Frameworks Based on the First Pseudo-Octahedral Hexanitrile Monomer via Nitrile Trimerization: Synthesis, Porosity, and CO<sub>2</sub> Gas Sorption Properties  
I. D. Wessely, A. M. Schade, S. Dey, **A. Bhunia**, A. Nuhnen, C. Janiak and S. Bräse, *Materials*, 2021, 14, 3214. <https://doi.org/10.3390/ma14123214>

### Dr. Bibhuti Bhushan Show

1. *Fabrication of n-TiO<sub>2</sub>/p-CuO thin-film heterojunction for efficient photocatalytic degradation of toxic organic dyes and reduction of metal ions in solution*, Sk. T. Ahamed, A. Ghosh, **B. Show**, A. Mondal, *Journal of Materials Science: Materials in Electronics*, 2020, 31, 16616 – 16633.
2. *Contrasting spectroscopic response of human hemoglobin in presence of graphene oxides and its reduced form: Comparative approach with carbon quantum dots*, M. Chakraborty, I. Mitra, A.J. Roy, S. Paul, A. Mallick, S. Das, A. Saha, **B. Show**, P.K. Chakrabarti, T. Ganguly, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 2021, 247, 119079 (1-16).
3. *Hierarchical copper oxide as efficient enzymeless amperometric biosensor and promising photocatalyst*, **B. Show**, Sk. F. Ahmed, A. Mondal, N. Mukherjee, *Journal of Environmental Chemical Engineering*, 2021, 9, 104748 (1-13).
4. *Facile synthesis of CuCr<sub>2</sub>O<sub>4</sub>/BiOBr nanocomposite and its photocatalytic activity towards RhB and tetracycline hydrochloride degradation under household visible LED light irradiation*, K. Ghorai, M. Bhattacharjee, D. Mandal, A. Hossain, T. Bhunia, M. Das, P.P. Ray, **B. Show**, P. Bera, T.K. Mandal, Md. M. Seikh, A. Gayen, *Journal of Alloys and Compounds*, 2021, 867, 157947 (1-21).
5. *LaNiO<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub> nanocomposite: An efficient Z-scheme photocatalyst for wastewater treatment using direct sunlight*, K. Ghorai, A. Panda, A. Hossain, M. Bhattacharjee, M. Chakraborty, S. K. Bhattacharya, **B. Show**, A. Sarkar, P. Bera, H. Kim, Md. M. Seikh, A. Gayen, *Journal of Rare Earths*, <https://doi.org/10.1016/j.jre.2021.04.013>

### Dr. Chittaranjan Sinha

1. “Molecular modeling of potent novel sulfonamide derivatives as non-peptide small molecule anti-COVID 19 agents”, S Pradhan, R Prasad, C Sinha, P Sen, *Journal of Biomolecular Structure and Dynamics*, 2021, 1-14 (March, 2021)
2. “Development of a Schottky barrier diode using molecular network of 1-alkyl-2-(aryloxy) imidazole prepared by Langmuir–Blodgett technique”, T Singha, D Mallick, U Chakraborty, P Maiti, R Jana, C Sinha, PP Ray, PK Paul, *J. Physics and Chemistry of Solids*, 2021, 149, 109778 (February, 2021).
3. “Synthesis, crystal structure and biological application of a Cu (II) coordination compound of 2-hydroxy-5-methyl-3-(pyridin-3-yliminomethyl)-benzaldehyde”, HS Chatterjee, B Dutta, K Pal, K Jana, PK Mahapatra, C Sinha, *Journal of the Indian Chemical Society*, 2021, 98 (1), 100007 (January, 2021).
4. Two acetylenedicarboxylato-bridged 4-styrylpyridine appended 1D coordination polymers: synthesis, structural characterization and variable temperature magnetism. B. Dutta, Akhtaruzzaman, H. Sato, T. Akitsu, A. M. Z. Slawin, U. Kar, C. Sinha and M. H. Mir, *J. Chem. Sci.*, 2020, 132, 1-6. (December, 2020)
5. “Silver Nanoparticles Derived from *Albizia lebbbeck* Bark Extract Demonstrate Killing of Multidrug Resistant Bacteria by Damaging Cellular Architecture with Antioxidant Activity” by A. Das Mahapatra, C. Patra, J. Mondal, C. Sinha, P. C. Sadhukhan, D. Chattopadhyay, *ChemistrySelect*, 2020, 5 (15), 4770-4777 (April, 2020).
6. “Biporous Cd(II) Coordination Polymer via *in Situ* Disulfide Bond Formation: Self-Healing and Application to Photosensitive Optoelectronic Device” by K. Naskar, A. Dey, S. Maity, P. P. Ray, P. Ghosh, C. Sinha, *Inorg. Chem.* 2020, 59(8), 5518-5528 (April, 2020).
7. “A Novel Synthesis of the Graphene Oxide-Silver (GO-Ag) Nanocomposite for Unique Physiochemical Applications”, by S. Kumari, P. Sharma, S. Yadav, J. Kumar, A. Vij, P. Rawat, S. Kumar, C. Sinha, J. Bhattacharya, C. M. Srivastava, S. Majumder, *ACS omega*, 2020, 5 (10), 5041-5047 (April, 2020).

## Annual Report 2020-2021

8. "Photo-tunable azobenzene-anthraquinone schiff base copper complexes as mediators for laccase in biofuel cell cathode" K. Kajiwarra, K. S. Pradhan, T. Haraguchi, C. Sinha, Parida, S. Giri, G. Roymahaptra, T. Akitsu, *Symmetry*, **2020**, *12* (5), 797-805 (April, 2020).
9. "Rhodium(III) complexes of 1-Alkyl-2-(o-thioalkyl) phenylazo} imidazoles: synthesis, structure, spectral characterization, DNA binding study and DFT calculation" by D. Sardar, P. Datta, C. Sinha, *Transition Metal Chemistry*, **2020**, *45*, 595–603 (November, 2020).
10. "A Fluorogenic Triphenyl-Amine-Naphthyl-Hydrazide Probe Selective for Cu<sup>2+</sup> and Cysteine Detection via an ON-OFF-ON Logic path with Real Applications", S. Paul, S. Dey, K. Pal, S. Maity, K. Jana, and C. Sinha, *Chemistry Select*, **2020**, *5*, 15233-15242 (December, 2020).
11. "Unusual redox activity of composite alkaline earth metal oxides and reduced graphene oxide system" by S. Majumder, S. Sharma, D. Ghosh, P. Joon, C. Sinha, *Indian J. Chem. A*, **2020**, *57A*, 605-609 (June, 2020).
12. "Arylazoimidazole complexes of lead(II)-halide and their Photochromism" by D. Mallick, B. Chowdhury, C. Sen, K. K. Sarkar, S. Jana, S. Mondal, C. Sinha, *Indian J. Chem.*, **2020**, *57A*, 418-426 (May, 2020).
13. "Trace Quantity Detection of H<sub>2</sub>PO<sub>4</sub><sup>-</sup> by Fluorescent Metal–Organic Framework (F-MOF) and Bioimaging Study" by K. Naskar, A. K. Bhanja, S. Paul, K. Pal and C. Sinha, *Cryst. Growth Des.* **2020**, *20*, 6453–6460 (September, 2020).
14. "Three-Dimensional MOF-Assisted Self-Polarized Ferroelectret: An Effective Autopowered Remote Healthcare Monitoring Approach" by K. Roy, S. Jana, S. K. Ghosh, B. Mahanty, Z. Mallick, S. Sarkar, C. Sinha, and D. Mandal, *Langmuir* **2020**, *36*, 11477–11489 (October, 2020).
15. "A promising class of luminescent derivatives of Silver(I) and Gold(I)-N-heterocyclic carbene" by L. Jhulki, R. Purkait, H. K. Kisan, V. Bertolasi, A. A. Isab, C. Sinha, J. Dinda, *Appl. Organomet. Chem.*, **2020**, *34*, e5673 (June, 2020).
16. "A Vanillinyl-Hydrazone Schiff Base: Recognition of Mg<sup>2+</sup>, Zn<sup>2+</sup>, Cd<sup>2+</sup> and I<sup>-</sup> by Turn-On Fluorescence Method", S. Dey, R. Purkait, D. Mallick, and C. Sinha, *Chemistry Select* **2020**, *5*, 8274–8283 (July, 2020).
17. "X-ray structure of two Schiff bases: TURN-ON sensing of Fe<sup>3+</sup> and Al<sup>3+</sup> in the HepG2 cell line", by S. Dey, S. Maity, R. Purkait, K. Pal, P. Ghosh, K. Jana and C. Sinha, *Anal Methods*, **2020**, *12*, 5485-5495 (October, 2020).
18. "Stabilization of cyclic water tetramers and dimers in the crystal host of 2D coordination networks: electrical conductivity and dielectric studies" by B. Dutta, S. R. Ghosh, A. Ray, S. Jana, C. Sinha, S. Das, A. D. Jana and M. Hedayetullah Mir, *New J. Chem.*, **2020**, *44*, 15857—15870 (August, 2020).
19. "Supramolecular assembly of a 4-(1-naphthylvinyl) pyridine-appended Zn (ii) coordination compound for the turn-on fluorescence sensing of trivalent metal ions (Fe<sup>3+</sup>, Al<sup>3+</sup>, and Cell imaging application", by B. Dutta, S. Dey, K. Pal, S. Bera, S. Naaz, K. Jana, C. Sinha, M. Hedayetullah Mir, *New J. Chem.*, **2020**, *44*, 13163—13171 (July, 2020).
20. "Coordination polymers of Ag(I) and Hg(I) ions with 2, 2'-azobispyridine: synthesis, characterization and enhancement of conductivity in the presence of Cu(II) ions", S. Maity, K. Naskar, T. Bhowmik, A. Bera, T. Weyhermüller, C. Sinha and P. Ghosh, *Dalton Trans.*, **2020**, *49*, 8438–8442 (June, 2020).
21. "Functionalized sulfamethoxazole and its metal complex : Structural characterization, antibacterial and anticancer study of sulfamethoxazolyl-azo-salicylic acid and its copper(II) complex", N. Sahu, K. Pal, F. Ahmed, N. Sepay, K. Jana, A. M. Z. Slawin and C. Sinha, *J. Indian Chem. Soc.*, **2020**, *97*, 1199-120 (Invited Article in Medicinal Chemistry Special Issue) (July, 2020).
22. Exploration of [2+2] photodimerization of coordination polymers in various applications† B. Dutta, C Sinha and M Hedayetullah Mir, *J. Indian Chem. Soc.*, **2020**, *97*, 2601-2607 (Annual Convention of Chemists 2020 Special Issue) (December, 2020).

### Dr. Debajyoti Ghoshal

1. G. Pahari, S. Ghosh, A. Halder, D. Ghoshal; Structural Transformations in Metal–Organic Frameworks for the Exploration of Their CO<sub>2</sub> Sorption Behavior at Ambient and High Pressure; *Crystal Growth & Design* **21**, *5*, 2633-2642, 2021.

## Annual Report 2020-2021

2. D. K. Maity, F. Haque, A. Halder, D. Ghoshal; Reversible Switching of Frameworks through Single-Crystal-to-Single-Crystal Structural Transformation in Two Entangled Coordination Polymers and Their Impact on Adsorption; *Crystal Growth & Design* 20, 12, 7667-7674, 2020.
3. R. Sen, A. Halder, D. Ghoshal; Three mixed ligand coordination polymers: Syntheses, characterization and detailed study of the structural transformations; *Polyhedron* 183, 114534, 2020.
4. A. Das, A. Halder, B. Bhattacharya, G. Pahari, D. Ghoshal; Mixed ligand coordination complexes by using multicomponent ligand: Syntheses, characterization and effect of non-covalent interactions on their framework structures; *Journal of Molecular Structure* 1201, 127189, 2020.

### Prof. Jnan Prakash Naskar

1. S. Ghosh, D. Singharoy, S. Konar, **J. P. Naskar** and S. C. Bhattacharya  
Solvatochromic behavior of a pyrene-pyrimidine-based Schiff base and detection of heavy metal ions in aqueous media  
**Journal of Coordination Chemistry** 74 (2021) 1272-1283
2. S. Ghosh, D. Singharoy, **J. P. Naskar** and S. C. Bhattacharya Selective sensing of Cu<sup>2+</sup> ion by naphthalene based Schiff base  
**J. Indian Chem. Soc.** 98 (2021) 100062-100067

### Dr. Kausikisankar Pramanik

1. Tapas Ghorui, Amar Hens and Kausikisankar Pramanik
2. Synthesis, photophysical properties and theoretical studies of pyrrole-based azoaromatic Zn(II) complexes in mixed aqueous medium
3. *Inorg. Chem. Acta* 527, 120586, 2021 (doi.org/10.1016/j.ica.2021.120586).
4. Soumitra Dinda, Srijita Naskar, Subhadip Roy, Kausikisankar Pramanik and Sanjib Ganguly
5. An insight into the coordination specificity of polyaromatic hydrocarbons (PAHs) grafted hydrazones towards rhodium(III)
6. *Polyhedron* 205, 115318, 2021 (doi.org/10.1016/j.poly.2021.115318).
7. Soumitra Dinda, Tamanna Sultana, Suhana Sultana, Sarat Chandra Patra, Arup K Mitra, Subhadip Roy, Kausikisankar Pramanik and Sanjib Ganguly
8. Ruthenocycles of benzothiazolyl and pyridyl hydrazones with ancillary PAHs: synthesis, structure, electrochemistry and antimicrobial activity
9. *New J. Chem.* 44, 11022-11034, 2020 (doi.org/10.1039/D0NJ01447H).
10. Soumitra Dinda, Sarat Chandra Patra, Tridib Samanta, Ambika Basu, Kausikisankar Pramanik and Sanjib Ganguly
11. Rhodium assisted *peri*-C-H activation in benzothiazolyl-hydrazone derivatized pyrene
12. *Polyhedron* 179, 114352, 2020 (doi.org/10.1016/j.poly.2020.114352).
13. Soumitra Dinda, Syamantak Roy, Sarat Chandra Patra, Subhrajyoti Bhandary, Kausikisankar Pramanik and Sanjib Ganguly
14. Polyaromatic hydrocarbon derivatized azo-oximes of cobalt(III) for the ligand-redox controlled electrocatalytic oxygen reduction reaction
15. *New J. Chem.* 44, 3737-3747, 2020 (doi.org/10.1039/C9NJ05527D).
16. Soumitra Dinda, Sarat Chandra Patra, Subhadip Roy, Supriyo Halder, Thomas Weyhermüller, Kausikisankar Pramanik and Sanjib Ganguly
17. Coligand driven diverse organometallation in benzothiazolyl-hydrazone derivatized pyrene: *ortho* vs. *peri* C-H activation
18. *New J. Chem.* 44, 1407-1417, 2020 (doi.org/10.1039/C9NJ05088D).

### Prof. Kajal Krishna Rajak

1. R. Patra, K. K. Rajak *Chemistry Select.* 2020, 5, 9477-9485
2. R. Patra, A. Maity, K. K. Rajak *Journal of Chemical Science* 2020, 505-514

## Annual Report 2020-2021

### Dr. Manas Kumar Panda

1. "Light-fueled rapid macroscopic motion of a greenfluorescent organic crystal" *Cryst Eng Comm*, **2021**, 23,5876, DOI: 10.1039/d1ce00460c
2. "Design and Synthesis of Triphenylamine Based Cyano Stilbenes for Picric Acid Sensing and Two Photon Absorption Applications", *Chemistry Select*, **2021**, accepted, ahead of print.

### Professor Nitin Chattopadhyay

1. S. Das, S. Mukherjee, S. Chakrabarty, N. Chattopadhyay, Hydroxyl group directed solvation of ESIPT probes in water: A demonstration from the fluorescence anisotropy of hydroxyflavones, *J. Phys. Chem. A*, **125**, 57-64, 2021.
2. K. Dutta, D. Poddar, S. Das, N. Chattopadhyay, S. K. Saha, Judicial design of graphene based nanocomposite harvesting UV-visible spectrum: Efficient, eco-friendly solar Photocatalyst for industrial waste management, *J. Environ. Chem. Engg.*, **9**, 104851 (1-11), 2021.
3. S. Das, S. Chakrabarty, N. Chattopadhyay, Origin of unusually high fluorescence anisotropy of 3-hydroxyflavone in water: Formation of probe-solvent cage-like cluster, *J. Phys. Chem. B*, **124**, 173-180, 2020.
4. P. Kundu, S. Das, N. Chattopadhyay, Switching from endogenous to exogenous delivery of a model drug to DNA through micellar engineering, *J. Photochem. Photobiol. B: Biol.*, **203**, 111765 (1-9), 2020.
5. S. Das, S. Nath, T. S. Singh, N. Chattopadhyay, Cavity size dependent stoichiometry of probe-cyclodextrin complexation: Experimental and molecular docking demonstration, *J. Photochem. Photobiol. A: Chem.*, **388**, 112158 (1-9), 2020.

### Dr. Partha Pratim Parui

1. Porphyrin-based probe for simultaneous detection of interface acidity and polarity during lipid-phase transition of vesicles R. Majumder, S. Roy, K. Okamoto, S. Nagao, T. Matsuo,\*and P. P. Parui\* *Langmuir* 2020, **36**, 426.
2. Protonation-induced pH increase at the triblock copolymer micelle interface for transient membrane permeability at neutral pH. Y. Sarkar, S. Roy, R. Majumder, S. Das, D. V. Bhalani, A. Ray, S. K. Jewrajka and P. P. Parui\* *Soft Matter*, 2020, **16**, 798.
3. An aluminium fluorosensor for the early detection of micro-level alcoholate corrosion S. Roy, S. Das, R. Majumder, A. Ray\* and P. P. Parui\* *RSC Adv.*, 2020, **10**, 23245.
4. An Inquisitive Fluorescence Method for the Real-Time Detection of Trace Moisture in Polar Aprotic Solvents with the Application of Water Rancidity in Foodstuffs S. Roy, S. Das, A. Ray and P. P. Parui\* *New J. Chem.*, 2021, **45**, 4574.
5. Fluorometric trace methanol detection in ethanol and isopropanol in a water medium for application in alcoholic beverages and hand sanitizers S. Roy, S. Das, A. Ray\* and P. P. Parui\* *RSC Adv.*, 2020, **11**, 30093

### Dr. Partha Roy

1. Tanumoy Dhawa, Ananta Hazra, Arpita Barma, Kunal Pal, Parimal Karmakar and Partha Roy, 4-Methyl-2,6-diformylphenol based biocompatible chemosensors for pH: discrimination between normal cells and cancer cells, *RSC Advances*, **10**, 15501, 2020.
2. Aradhita Bhattacharjee, Subhadeep Das, Biswadip Das and Partha Roy, Intercalative DNA binding, protein binding, antibacterial activities and cytotoxicity studies of a mononuclear copper(II) complex, *Inorganica Chimica Acta*, **514**, 119961, 2021.
3. Partha Roy, Fluorescent chemosensors based on 4-methyl-2,6-diformylphenol, *Coordination Chemistry Reviews*, **427**, 213562, 2021.

## Annual Report 2020-2021

4. Dinesh Maity, Sushil Kumar Mandal, Bibhas Guha and Partha Roy\*, A salicylaldehyde based dual chemosensor for zinc and arsenate ion detection: Biological application, *Inorganica Chimica Acta*, **519**, 120258, 2021.
5. Ankita Roy, Mahasweta Nandi and Partha Roy, Dual chemosensors for metal ions: A comprehensive review, *Trends in Analytical Chemistry*, **138**, 116204, 2021.
6. Shampa Chakrabortya, Sima Paul, Partha Roy, Sadhana Rayalu, Detection of Cyanide ion by Chemosensing and Fluorosensing Technology, *Inorganic Chemistry Communications*, **128**, 108562, 2021.

### Dr. Partha Mahata

1. Response of a Zn (II)-based Metal-Organic Coordination Polymer towards Trivalent Metal Ions ( $Al^{3+}$ ,  $Fe^{3+}$ ,  $Cr^{3+}$ ) Probed by Spectroscopic Approaches, Pooja Daga, Priyanka Manna, Prakash Majee, Debal Kanti Singha, Sayani Hui, Ananta Kumar Ghosh, **Partha Mahata** and Sudip Kumar Mondal, *Dalton Transactions*, (2021), 50, 7388, DOI: 10.1039/D1DT00729G (Impact factor: 4.390).
2. pH Response of a Hydroxyl-Functionalized Luminescent Metal-Organic Framework based Phosphor, Sayani Hui, Prakash Majee, Debal Kanti Singha, Pooja Daga, Sudip Kumar Mondal and **Partha Mahata**, *New Journal of Chemistry*, (2021), 45, 9394, DOI: 10.1039/D1NJ00366F (Impact factor: 3.591).
3. A selective detection of nanomolar-range noxious anions in water by a luminescent metal-organic framework, Pooja Daga, Sourav Sarkar, Prakash Majee, Debal Kanti Singha, Sayani Hui, **Partha Mahata**, Sudip Kumar Mondal, *Materials Advances*, (2021), 2, 985. DOI: 10.1039/d0ma00811g (Impact factor: Not available).
4. Ambient pressure synthesis and magnetic properties of  $La[Cu_{3-x}Mn_x][Mn_{4-y}Ti_y]O_{12}$  ( $x = 0$  &  $1$ ;  $y = 0.5$  &  $1$ ) quadruple perovskite, ArifulHaque, Radhamadhab Das, M. Vasundhara, Debamalya Ghosh, Arup Gayen, **Partha Mahata**, Asish K Kundu, MdMotinSeikh, *Journal of Alloys and Compounds*, (2021), 875, 159984, DOI: <https://doi.org/10.1016/j.jallcom.2021.159984> (Impact Factor: 5.316)
5. Synthesis, structure and magnetic properties of  $La_{1-x}Ln_xCr_{0.5}Co_{0.5}O_3$  ( $x = 0$  and  $0.2$  &  $Ln = Pr, Sm$  and  $Gd$ ) perovskites, Debamalya Ghosh, Radhamadhab Das, Ariful Haque, Kalyan Ghorai, Arup Gayen, **Partha Mahata**, Asish K Kundu, Md Motin Seikh, *Journal of Magnetism and Magnetic Materials*, (2021), 523, 167621, DOI: <https://doi.org/10.1016/j.jmmm.2020.167621> (Impact factor: 2.993).
6. Irregularly Shaped  $Zn_{0.6}Mn_{2.4}O_4$  Nanoparticles for Supercapacitors and Nitroaromatics Detection, Debamalya Ghosh, Ananya Pal, Debal Kanti Singha, Susanta Ghosh, Oleg I. Lebedev, Md. Motin Seikh and **Partha Mahata**, *ACS Appl. Nano Mater.*, (2020), 3, 10105, DOI: <https://doi.org/10.1021/acsanm.0c02088> (Impact factor: 5.097).
7. A lanthanide doped metal-organic framework demonstrated as naked eye detector of a trace of water in organic solvents including alcohols by monitoring the turn-on of luminescence, PrakashMajee, PoojaDaga, Debal Kanti Singha, Debabrata Saha, **Partha Mahata** and Sudip Kumar Mondal, *Journal of Photochemistry and Photobiology A: Chemistry*, (2020), 402, 112830, DOI: [doi.org/10.1016/j.jphotochem.2020.112830](https://doi.org/10.1016/j.jphotochem.2020.112830) (Impact factor: 4.291).
8. Dramatic Luminescence Signal from a Co(II) based Metal Organic Compound due to Construction of Charge Transfer Bands with  $Al^{3+}$  and  $Fe^{3+}$  ions in Water: Steady State and Time Resolved Spectroscopic Studies, PoojaDaga, PrakashMajee, Debal Kanti Singha, Priyanka Manna, Sayani Hui, Ananta Kumar Ghosh, **Partha Mahata** and Sudip Kumar Mondal, *New Journal of Chemistry*, (2020), 44, 4376, DOI: 10.1039/D0NJ00295J (Impact factor: 3.591).
9. Luminescent metal-organic framework-based phosphor for the detection of toxic oxoanions in an aqueous medium, DebalKantiSingha, PrakashMajee, SayaniHui, Sudip Kumar Mondal and **Partha Mahata**, *Dalton Transactions*, (2020), 49, 829, DOI: 10.1039/C9DT04220B (Impact factor: 4.390).
10. A Cu (II) Inorganic Co- Crystal as a Versatile Catalyst Towards 'Click' Chemistry for Synthesis of 1, 2, 3-triazoles and  $\beta$ -hydroxy-1, 2, 3-triazoles, DebasishGhosh, Subhendu Dhibar, Amiya Dey, Priyanka Manna, **Partha Mahata** and BiswajitDey, *ChemistrySelect*, (2020), 5, 75, DOI: <https://doi.org/10.1002/slct.201904225> (Impact factor: 2.109).
11. Incompatible magnetic and dielectric properties of  $BiCu_{3-x}Mn_xTi_{4-y}MyO_{12}$  ( $x = 0$  &  $0.5$ ;  $y = 1$  &  $1.5$  and  $M = Fe$  &  $Mn$ ), Ariful Haque, Ashish Shukla, Uma Dutta, Debamalya Ghosh, Arup Gayen, **Partha**



## Annual Report 2020-2021

- Mahata**, M. Vasundhara, Asish K. Kundu and MdMotinSeikh, *Ceramics International*, (2020), 46, 5907, DOI:<https://doi.org/10.1016/j.ceramint.2019.11.043> (Impact factor: 4.527).
12. Change in magnetic properties of  $\text{La}_2\text{MnCoO}_6$  in composite with  $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ , ArifulHaque, Debamalya Ghosh, Uma Dutta, AshishShukla, Arup Gayen, **Partha Mahata**, Asish K. Kundu and Md. Motin Seikh, *Journal of Magnetism and Magnetic Materials*, (2020), 494, 165847, DOI: <https://doi.org/10.1016/j.jmmm.2019.165847> (Impact factor: 2.993).

### Dr. Pradip Kumar Mahapatra

1. Synthesis, crystal structure and biological application of Cu(II) coordination compound of 2-hydroxy-5methyl-3-(pyridin3-yliminomethyl)-benzaldehyde – Himadri S. Chatterjee, Basudeb Dutta, Kunal Pal, Kuladip Jana, **Pradip K. Mahapatra**, Chittaranjan Sinha; *Journal of the Indian Chemical Society* 98 (2021) 100007.

### Prof. Rina Ghosh

1.  $\text{FeCl}_3$  catalyzed tandem synthesis of optically pure sugar based benzimidazoles, S. Mishra, S. Roy, R. Ghosh, D. Dey and B. Hazra, *J. Indian Chem. Soc.* **2020**, *97*, 197-211.
2. One-pot construction of carbohydrate scaffolds mediated by metal catalysts, M. M. Mukherjee, S. K. Maity and R. Ghosh, *RSC Adv.*, **2020**, *10*, 32450-32475.
3. Recent chemical syntheses of bacteria related oligosaccharides using modern expeditious approaches, N. Basu, R. Ghosh, *Carbohydr. Res.*, **2021**, *507*, 108295. **Invited Article for Special Issue.**

### Prof. Samaresh Bhattacharya

1. Copper complexes of 1,4-diazabutadiene ligands: Tuning of metal oxidation state and, application in catalytic C-C and C-N bond formation  
---- A. Mukherjee, S. Basu and **S. Bhattacharya**  
**Inorg. Chim. Acta** 2020, **500**, 119228. (GKL issue)
2. Heteroleptic 1,4-Diazabutadiene Complexes of Ruthenium: Synthesis, Characterization and Utilization in Catalytic Transfer Hydrogenation  
---- R. Saha, A. Mukherjee and **S. Bhattacharya**  
**Eur. J. Inorg. Chem.** 2020, 4539-4548.
3. Di-palladium complex of terephthalaldehyde bis(thiosemicarbazone) ligand: Synthesis, structure and catalytic application  
---- P. Paul and **S. Bhattacharya**  
**J. Indian Chem. Soc.** 2020, **97**, 2517-2524.
4. Utilization of Guanidine Based Ancillary Ligands in Arene-Ruthenium Complexes for Selective Cytotoxicity  
---- J. Karmakar, P. Nandy, S. Das, D. Bhattacharya, P. Karmakar, and **S. Bhattacharya**  
**ACS Omega** 2021, **6**, 8226-8238.
5. Dual utility of a single diphosphine-ruthenium complex: a precursor for new complexes and, a pre-catalyst for transfer-hydrogenation and Oppenauer oxidation  
---- A. Mukherjee and **S. Bhattacharya**  
**RSC Adv.** 2021, **11**, 15617-15631.
6. Rhodium and Iridium Mediated C-H and O-H Bond Activation of Two Schiff Base Ligands: Synthesis, Characterization and Catalytic Properties of the Organometallic Complexes  
---- P. Sengupta, R. Das, P. Dhibar, P. Paul and **S. Bhattacharya**  
**Front. Chem.** **2021**, **9**, 696460 (pp 1-10).  
doi: 10.3389/fchem.2021.696460

### Dr. Samit Guha

1. A. Mukherjee, P. C. Saha, R. S. Das, T. Bera, **Samit Guha\***

## Annual Report 2020-2021

- Acidic pH-Activatable Visible to Near-Infrared Switchable Ratiometric Fluorescent Probe for Live-Cell Lysosome Targeted Imaging.  
*ACS Sens.* **2021**, *6*, 2141–2146 [I.F. = 7.71].
2. P. C. Saha, T. Bera, T. Chatterjee, J. Samanta, A. Sengupta, M. Bhattacharyya, **Samit Guha\*** Supramolecular Dipeptide-Based Near-Infrared Fluorescent Nanotubes for Cellular Mitochondria Targeted Imaging and Early Apoptosis.  
*Bioconjugate Chem.* **2021**, *32*, 833–841 [I.F. = 4.77].
  3. B. Paul, A. Mukherjee, D. Bhuyan, **Samit Guha\***,  
Construction of Unsymmetrical Bis-Urea Macrocyclic Host for Neutral Molecule and Chloride Ion Binding.  
*J. Heterocycl. Chem.* **2021**, 10.1002/jhet.4329 [I.F. = 2.19].
  4. R. S. Das, P. C. Saha, N. Sepay, A. Mukherjee, S. Chatterjee, **Samit Guha\***  
Design and Synthesis of Near-Infrared Mechanically Interlocked Molecules for Specific Targeting of Mitochondria.  
*Org. Lett.* **2020**, *22*, 5839–5843 [I.F. = 6.01].
  5. P. C. Saha, R. S. Das, T. Chatterjee, M. Bhattacharyya, **Samit Guha\***  
Supramolecular  $\beta$ -Sheet Forming Peptide Conjugated with Near-Infrared Chromophore for Selective Targeting, Imaging, and Dysfunction of Mitochondria.  
*Bioconjugate Chem.* **2020**, *31*, 1301–1306 [I.F. = 4.77].

### Prof. Sanjay Bhar

1. “Catalytic efficiency of  $\beta$ -cyclodextrin hydrate-chemoselective reaction of indoles with aldehydes in aqueous medium”-Asit Kumar Das, Nayim Sepay, Sneha Nandy, Avishek Ghatak and Sanjay Bhar; *Tetrahedron Letters*, **2020**, *61*, Article No. 152231.
2. “Chemoselective formation of C–N bond in wet acetonitrile using amberlyst®-15(H) as a recyclable catalyst”-Sneha Nandy, Asit Kumar Das and Sanjay Bhar; *Synthetic Communications*, **2020**, *50*, 3326-3336.

### Prof. Swapan Kumar Bhattacharya

1. KK Bera, M Chakraborty, M Mondal, S Banik, SK Bhattacharya, Synthesis of  $\alpha$ - $\beta$  Bi<sub>2</sub>O<sub>3</sub> heterojunction photocatalyst and evaluation of reaction mechanism for degradation of RhB dye under natural sunlight, *Ceramics International*, *46*, 7667-7680, 2020.
2. D Majumdar, M Mandal, SK Bhattacharya, Journey from supercapacitors to supercapatteries: recent advancements in electrochemical energy storage systems, *Emergent Materials*, *3*, 347-367, 2020.
3. S Chatterjee, A Ray, M Mandal, S Das, SK Bhattacharya, Synthesis and Characterization of CuO-NiO Nanocomposites for Electrochemical Supercapacitors, *Journal of Materials Engineering and Performance*, *29*, 8036-8048, 2020.
4. M Mandal, R Nagaraj, K Chattopadhyay, M Chakraborty, S Chatterjee, D Ghosh, SK Bhattacharya, A high-performance pseudocapacitive electrode based on CuO–MnO<sub>2</sub> composite in redox-mediated electrolyte, *Journal of Materials Science*, *56*, 3325-3335, 2021.
5. SR Chowdhury, P Mukherjee, SK Bhattacharya, A Highly Sensitive Nonenzymatic Glucose Sensor Based on Carbon Electrode Amplified with Pd<sub>x</sub>Cu<sub>y</sub> Catalyst, *Electroanalysis*, *33*, 820-830, 2021.
6. M Chakraborty, KK Bera, M Mandal, K Ghorai, N Sepay, MR Das, SR Chowdhury, A Gayen, SK Bhattacharya, Visible light assisted photo-electrocatalytic oxidation of methanol using low Pt content NiO-rutile TiO<sub>2</sub> ternary heterojunction, *Applied Surface Science*, *541*, 148450, 2021.
7. SR Chowdhury, KK Bera, A Ray, P Bera, T Maiyalagan, SK Bhattacharya, Synergistic catalytic activity of palladium–silver alloy nanoparticle for anodic oxidation of ethanol in alkali, *International Journal of Hydrogen Energy*, *46*, 14212-14224, 2021.
8. K. Ghorai, A Panda, A Hossain, M Bhattacharjee, M Chakraborty, SK Bhattacharya, B Show, A Sarkar, P Bera, H Kim, MM Seikh, LaNiO<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub> nanocomposite: An efficient Z-scheme photocatalyst for wastewater treatment using direct sunlight. *Journal of Rare Earths*, 2021.

## Annual Report 2020-2021

9. KK Bera, M Chakraborty, SK Bera, M Mandal, S Chatterjee, SK Bhattacharya, Synthesis of Different Pt-ZnO Binary Composites for Synergistic Photo-Electrocatalytic Oxidation of Methanol in Alkali, *ChemistrySelect*, 6, 6586-6596, 2021.
10. S Chatterjee, SK Bhattacharya, Size-Dependent Catalytic Activity of PVA-Stabilized Palladium Nanoparticles in *p*-Nitrophenol Reduction: Using a Thermoresponsive Nanoreactor, *ACS omega* 6, 20746-20757, 2021.

### Prof. Shouvik Chattopadhyay

1. A tetrameric *uudd* type water cluster encapsulated in a dinuclear vanadium(V) Schiff base complex and its role in the formation of supramolecular assemblies: A joint experimental and theoretical study.  
S. Thakur, A. Frontera, and S. Chattopadhyay, *Inorg. Chim. Acta*, 2021, 515, 120057
2. Dinuclear mixed valence cobalt(II/III) and hetero-tetranuclear cobalt(III)/Na complexes with a compartmental ligand: Synthesis, characterization and use as catalysts for oxidative dimerisation of 2-aminophenol  
A. Banerjee and S. Chattopadhyay, *Inorg. Chim. Acta*, 2021, 515, 120044
3. An insight into the role of supramolecular interactions to stabilize the solid state structure of an octahedral nickel(II) diamine complex  
P.K. Bhaumik, A. Frontera and S. Chattopadhyay, *Inorg. Chim. Acta*, 2021, 515, 120023.
4. Existence of stronger C–H··· $\pi$ (chelate ring) interaction compared to C–H··· $\pi$ (arene) interactions in the supramolecular assembly of dinuclear iron(III) Schiff base complexes: A theoretical insight  
T. Basak, A. Frontera and S. Chattopadhyay, *Inorg. Chim. Acta*, 2021, 516, 120081.
5. Hydrogen bond mediated intermolecular magnetic coupling in mononuclear high spin iron(III) Schiff base complexes: Synthesis, structure and magnetic study with theoretical insight  
T. Basak, C. J. Gómez-García, R. M. Gomila, A. Frontera and S. Chattopadhyay, *RSC Adv.*, 2021, **11**, 3315
6. A theoretical insight on the anion···anion interactions observed in the solid state structure of a hetero-trinuclear complex  
K. Ghosh, A. Frontera and S. Chattopadhyay, *CrystEngComm*, 2021, **23**, 1429.
7. Phenoxo-bridged dinuclear mixed valence cobalt(III/II) complexes with reduced Schiff base ligands: Synthesis, characterization, band gap measurement and fabrication of Schottky barrier diodes  
A. Banerjee, D. Das, P. P. Ray, S. Banerjee, and S. Chattopadhyay, *Dalton Trans.*, 2021, **50**, 1721.
8. Insight into non-covalent interactions in two triamine based mononuclear iron(III) Schiff base complexes with special emphasis on the formation of Br··· $\pi$  halogen bonding  
T. Basak, A. Frontera and S. Chattopadhyay, *CrystEngComm*, 2021, **23**, 1578.
9. Phenoxido mediated antiferromagnetic and azide mediated ferromagnetic coupling in two dinuclear ferromagnetic nickel(II) complexes with isomeric Schiff bases: A theoretical insight on the pathway of magnetic interaction  
S. Khan, T. Dutta, M. Cortijo, R. González-Prieto, M. G. B. Drew, R. M. Gomila, A. Frontera and S. Chattopadhyay, *CrystEngComm*, 2021, **23**, 1942
10. Synthetic methodology, structures and properties of mixed valence copper(I/II) complexes with various Schiff base and reduced Schiff base ligands  
P.K. Bhaumik and S. Chattopadhyay, *Polyhedron* 2021, **199**, 115086
11. An insight on the formation of H-bonds propagating the monomeric zinc complexes of a tridentate reduced Schiff base to form infinite chain  
M. Karmakar, A. Frontera and S. Chattopadhyay, *CrystEngComm*, 2021, **23**, 1918.
12. Synthetic strategies, crystal structures and biological activities of metal complexes with the members of azole family: A review  
P.K. Bhaumik, K. Ghosh and S. Chattopadhyay, *Polyhedron* 2021, **200**, 115093
13. On the importance of  $\text{RH}_3\text{C}\cdots\text{N}$  tetrel bonding interactions in the solid state of a dinuclear zinc complex with a tetradentate Schiff base ligand  
I. Mondal, A. Frontera and S. Chattopadhyay, *Cryst Eng Comm*, 2021, *CrystEngComm*, 2021, **23**, 3391

## Annual Report 2020-2021

14. Differentiating intramolecular spodium bonds from coordination bonds in two polynuclear zinc(II) Schiff base complexes  
T. Basak, Rosa M. Gomila, A. Frontera and S. Chattopadhyay, *CrystEngComm*, 2021, **23**, 2303
15. An insight to the spin density distribution and non-covalent interactions in a carboxylate bridged class-I mixed valence cobalt(II/III) complex of quadruplet nature  
A. Banerjee, A. Frontera and S. Chattopadhyay, *Inorg. Chim. Acta*, 2021, **521**, 120298.

### Prof. Subrata Nath Koner

1. T. Maity, P. Ghosh, S. Das, D. Saha and S. Koner, Post-synthetically modified metal–organic framework for copper catalyzed denitrative C-N coupling of nitroarenes under heterogeneous condition, *New. J. Chem.* **45**, 5568 - 5575 (2021).
2. P. Ghosh, T. Maity, S. Biswas, R. Debnath and S. Koner, Thermally stable and robust gadolinium-based metal-organic framework: Synthesis, structure and heterogeneous catalytic O-arylation reaction, *Polyhedron*, **194**, 114934 (2021).
3. M. Ghosh, S. Biswas, M. Roy, S. Biswas, P. Ghosh, S. Koner, S. Mandal and S. Saha, A trinuclear Zn(II) Schiff base azido compound: synthesis, structure and exploration of antimicrobial activity, *New. J. Chem.* **45**, 12296-12304 (2021).
4. D. Saha, S. Gayen, T. Maity, A. Frontera, J. Ortega-Castro, K. Leus, G. Wang, P. Van Der Voort, P. Brandão and S. Koner, Combined Experimental and Computational Studies on Preferential CO<sub>2</sub> Adsorption over Zinc-based Porous Framework Solid, *New. J. Chem.* **44**, 1806 –1816 (2020).

### Dr. Subrata Mukhopadhyay

1. A new strategy to fabricate SnS-SnO<sub>2</sub> heterostructure with excellent photoresponse and charge transport properties: Efficient photocatalyst for fast photoreduction of Cr(VI)  
Sumanta Jana, Samit Pramanik, Bibhutibhusan Show, Anup Mondal and **Subrata Mukhopadhyay**  
**Mater. Sci. Eng. B: Solid-State Mater. Adv. Technol.**, **2021**, **accepted for publication (in press)**.
2. Synthesis and crystal structure of the simultaneous binding of Ni(II) cation and chloride by the protonated 2,4,6 tris-(2-pyridyl)-1,3,5 triazine ligand: theoretical investigations of anion··· $\pi$ ,  $\pi$ ··· $\pi$  and hydrogen bonding interactions  
Pampi Pal, Kinsuk Das, Anowar Hossain, Rosa M. Gomila, Antonio Frontera and **Subrata Mukhopadhyay**  
**New J. Chem.**, **2021**, **45**, **11689–11696**.
3. An experimental and theoretical exploration of supramolecular interactions and photoresponse properties of two Ni(II) complexes  
Samit Pramanik, Sudipta Pathak Sumanta Jana, Monotosh Mondol, Antonio Frontera and Subrata Mukhopadhyay  
**New J. Chem.**, **2021**, **45**, **12108–12119**.
4. Fabrication of a new heterostructure Au/Pt/SnO<sub>2</sub>: An excellent catalyst for fast reduction of para-nitrophenol and visible light assisted photodegradation of dyes  
Sumanta Jana, Saugata Konar, Bibhas Chandra Mitra, Anup Mondal and **Subrata Mukhopadhyay**  
**Mater. Res. Bull.**, **2021**, **141**, **111351 – 111364**.
5. Green synthesis of silver nanoparticles having specific anticancer activity against MDA-MB 468 carcinoma cells  
Nurunnesa Siddiqui, Kunal Pal, Mukti Mohammad, Parimal Karmakar, Md Maidul Islam and **Subrata Mukhopadhyay**  
**Adv. Nat. Sci.: Nanosci. Nanotechnol.**, **2021**, **12**, **025017 – 025025**.
6. Supramolecular association and quantification of intermolecular interactions of 4' functionalized 2,2':6',2''-terpyridines: Experimental observation and theoretical studies  
Suparna Tripathi, Anowar Hossain, Saikat Kumar Seth and **Subrata Mukhopadhyay**  
**J. Mol. Str.**, **2021**, **1226**, **129254 – 129268**.
7. Design and synthesis of a sulphur containing Schiff base drug: DNA binding studies and theoretical calculations

## Annual Report 2020-2021

- Urmila Saha, Malay Dolai, Saugata Konar, Amit Das, Ray J. Butcher, Gopinatha Suresh Kumar and **Subrata Mukhopadhyay**  
**J. Biomol. Struct. Dyn.**, **2021**, **39**, 263 – 271.
8. A dual role of cumin-seed extract towards the silver nanoparticle synthesis and stabilisation and its potential for antibacterial and anticancer activities through oxidative damage  
Nurunnesa Siddiqui, Kunal Pal, Parimal Karmakar, Md Maidul Islam and **Subrata Mukhopadhyay**  
**Adv. Nat. Sci.: Nanosci. Nanotechnol.** **2020**, **11**, 025019 – 025028.
9. Bipolar behavior of Salt-bridge (SB) interaction: A combined crystallographic and theoretical study  
Suparna Tripathi, Samiul Islam, Saikat Kumar Seth, Antonio Bauzá, Antonio Frontera and **Subrata Mukhopadhyay**  
**CrystEngComm.**, **2020**, **22**, 8171 – 8181.  
**(Quarterly HOT article and front cover)**
10. Quantitative insights into the crystal structure of a mixed-ligand Co(III) complex: Experimental and theoretical studies  
Suparna Tripathi, Anowar Hossain, Saikat Kumar Seth and **Subrata Mukhopadhyay**  
**J. Mol. Str.**, **2020**, **1216**, 128207 – 12816.
11. Chromogenic and fluorogenic “off-on-off” chemosensor for selective and sensitive detection of aluminum (Al<sup>3+</sup>) and bifluoride (HF<sub>2</sub><sup>-</sup>) ions in solution and in living Hep G2 cells: synthesis, experimental and theoretical studies  
Samit Pramanik, Saikat Kumar Manna, Sudipta Pathak, Debasish Mondal, Kunal Pal and **Subrata Mukhopadhyay**  
**New J. Chem.**, **2020**, **44**, 13259 – 13265

### Dr. Sujoy Baitalik

1. Paul, A.; Das, S.; Bar, M.; **Baitalik, S.\*** “Tuning of Photo-Redox Behaviours, and Thermodynamic and Kinetic Aspects of Intercomponent Energy Transfer in Trimetallic Complexes of Ru (II) and Os(II) by Exploiting Their Second Coordination Sphere”. *Dalton Trans.*, **2021**, *50*, 14872-14883.
2. Manna, K.; Ganguly, T.; **Baitalik, S.\***; **Jana, R.\*** “Visible-Light- and PPh<sub>3</sub>-Mediated Direct C–N Coupling of Nitroarenes and Boronic Acids at Ambient Temperature”. *Org. Lett.* **2021**, *23*, 8634-8639.
3. Mukherjee, S.; Sahoo, A.; Deb, S.; **Baitalik, S.\*** “Light and Cation-Driven Optical Switch based on a Stilbene-Appended Terpyridine System for the Design of Molecular-Scale Logic Devices”. *J. Phys. Chem. A* **2021**, *125*, *37*, 8261-8273.
4. Mukherjee, S.; Pal, P.; Sahoo, A.; **Baitalik, S.\*** “Low-Cost Photo-Switches Based on Stilbene-Appended Zn(II)-Terpyridine Complexes”. *Photochemical & Photobiological Sciences.* **2021**, *20*, 1125-1145.
5. Deb, S.; Sahoo, A.; Ahmed, T.; **Baitalik, S.\*** “Stimuli-Responsive Molecular Switches and Logic Devices Based on Ru(II)-Terpyridyl-Imidazole Coordination Motif”. *J. Phys. Chem. B* **2021**, *125*, 8919-8931.
6. Deb, S.; Sahoo, A.; Pal, P.; **Baitalik, S.\*** “Exploitation of the Second Coordination Sphere to Promote Significant Increase of Room-Temperature Luminescence Lifetime and Anion Sensing in Ruthenium-Terpyridine Complexes”. *Inorg. Chem.* **2021**, *60*, 6836-6851.
7. Pal, P.; Ganguly, T.; Sahoo, A.; **Baitalik, S.\*** “Emission Switching in the Near-Infrared by Reversible Trans-Cis Photoisomerization of Styrylbenzene-Conjugated Osmium Terpyridine Complexes”. *Inorg. Chem.* **2021**, *60*, 4869-4882.
8. Mukherjee, S.; Pal, P.; Sahoo, A.; **Baitalik, S.\*** “Photo-Switchable Iron-Terpyridine Complexes Functionalized with Styrylbenzene Unit”. *Journal of Photochemistry & Photobiology A.* **2021**, *407*, 113059(1-9).
9. Paul, A.; Ganguly, T.; Bar, M.; **Baitalik, S.\*** “Controlling the Direction of Intercomponent Energy Transfer by Appropriate Placement of Metals in Long-Lived Trinuclear Complexes of Fe(II), Ru(II), and Os(II)”. *Inorg. Chem.* **2021**, *60*, 412–422.

## Annual Report 2020-2021

### Prof. Soumen Ghosh

- i) "Effect of carbohydrate based polymers on worm-like micelles of cetyltrimethylammonium p-toluenesulfonate in aqueous media: Detail physicochemical and antimicrobial properties survey", Arpan Mal, Ankita Saha, Gargi Dinda and **Soumen Ghosh**, **J. Molecular Liquids** 299 (2020) 112153 - 112164.
- ii) "Theoretical approaches on the synergistic interaction between double-headed anionic amino acid-based surfactants and hexadecyltrimethylammonium bromide", Manas Barai, Manas Kumar Mandal, Habiba Sultana, Emili Manna, Sourav Das, Kaushik Nag, **Soumen Ghosh**, Anuttam Patra, and Amiya Kumar Panda, **J. Surfactants and Detergents** 23 (2020) 891-902.
- iii) "An elaborate investigation on the transition of rod-like micelle of cetyltrimethylammonium p-toluenesulfonate in presence of different additives", Ankita Saha, Arpan Mal and **Soumen Ghosh**, **J. Molecular Liquids** 309 (2020) 113084 - 113094.
- iv) "Relevance of  $\pi$ -stacking in tuning the neighboring structural pattern of soft nano-aggregates", Gulmi Chakraborty, Soumik Bardhan, **Soumen Ghosh** and Swapan K. Saha, **J. Molecular Liquids** 317 (2020) 114013 – 114021.
- v) "Studies on the self-aggregation, interfacial and thermodynamic properties of a surface active imidazolium-based ionic liquid in aqueous solution: Effects of salt and temperature", Sourav Das, Nitai Patra, Arnab Banerjee, Bijan Das and **Soumen Ghosh**, **J. Molecular Liquids** 320 (2020) 114497 – 114512.
- vi) "Temperature comparative studies on self-assembly of sodium dodecyl sulphate and didodecyl dimethyl ammonium bromide in aqueous, brine and trifluoroethanol media", Apensu Dey, Rajesh Banik and **Soumen Ghosh**, **J. Surfactants and Detergents** 24 (2021) 459-472.
- vii) "Spectroscopic study on the interaction of curcumin with single chain and gemini surfactants", Satyajit Mondal and **Soumen Ghosh**, **Chemical Physics Letters** 762 (2021) 138144 – 138150.
- viii) "Time dependent physicochemical changes of SDS-CTAB interacted self-assembled vesicles: Ostwald ripening effect", Arpan Mal, **Soumen Ghosh**, and Satya Priya Moulik, **Colloids and Surfaces A: Physicochemical and Engineering Aspects** 617 (2021) 126328 – 126337.
- ix) "Addressing the exigent role of a coumarin fluorophore toward finding the suitable microenvironment of biomimicking and biomolecular systems: steering to project the drug designing and drug delivery study", Sandip Paul, Pritam Roy, Sourav Das, **Soumen Ghosh**, Pinki Saha Sardar and Anjoy Majhi, **ACS Omega** 6 (2021) 11878-11896.
- x) "Effect of surfactant tail length on the hydroxypropyl cellulose-mediated premicellar aggregation of sodium *n*-alkyl sulfate surfactants", Sonali Mondal, Partha Pyne, Animesh Patra, Rajib Kumar Mitra and **Soumen Ghosh**, **Langmuir** 37 (2021) 6168-6177.
- xi) "Detailed physicochemical interaction of inulin with some conventional surfactants and surface active ionic liquid", Nitai Patra, Arpan Mal, Sourav Das and **Soumen Ghosh**, **J. Molecular Liquids** 340 (2021) 116849 – 116857.

### Prof. Saurabh Das

1. Durba Ganguly, Ramesh Chandra Santra, Swagata Mazumdar, Abhijit Saha, Parimal Karmakar, Saurabh Das, Radioprotection of thymine and calf thymus DNA by an azo compound: mechanism of action followed by DPPH radical quenching & ROS depletion in WI 38 lung fibroblast cells, **Heliyon**, 2020, 6: e04036.
2. Promita Nandy, Soumen Singha, Neha Banyal, Sanjay Kumar, Kasturi Mukhopadhyay and Saurabh Das, A Zn<sup>II</sup> complex of ornidazole with decreased nitro radical anions that is still highly active on entamoebahistolytica, **RSC Adv.** 2020, 10: 23286-23296.  
(The paper was selected by Editors of the journal as a 2020 HOT RSC Advances article).
3. Promita Nandy, Alivia Mukherjee, Chiranjit Pradhan, and Saurabh Das, Radio-sensitizing effects of Cu<sup>II</sup> and Zn<sup>II</sup> complexes of ornidazole: Role of nitro radical anion, **ACS Omega**, 2020, 5: 25668–25676.

## Annual Report 2020-2021

4. Bitapi Mandal and Saurabh Das, Electrochemical reduction of purpurin, its Mn(II) complex in DMF and aqueous-DMF mixed solvent: A cyclic voltammetric study, *Jour. Ind. Chem. Soc.* 2020, 97: 1-10 (invited article).
5. Swagata Mazumdar, Amit K Ghosh, Manikarna Dinda, Anjan K Das, Saurabh Das, Kuladip Jana, Parimal Karmakar, Evaluation of wound healing activity of ethanol extract of *Annona reticulata* L. leaf both in vitro and in diabetic mice model, *Jour. Trad. Complement. Med.* 2021, 11:27-37.
6. Somenath Banerjee, Sanjay Ray, Arup Datta, Palash Mondal, Monali Mishra, Balaji Perumalsamy, Ramasamy Thirumurugan, Dhanasekaran Dharumadurai, Saurabh Das, Partha Sarathi Guin, Solubilization of sodium 3-amino-2-hydroxyanthraquinone-1-sulphonate in sodium dodecyl sulfate micelles explains its permeation in A549 human lung cancer cell, *Jour. Chin. Chem. Soc.* 2020, 68: 250-262.
7. Tanmoy Saha, Prince Kumar, Nayim Sepay, Durba Ganguly, Kanchan Tiwari, Kasturi Mukhopadhyay, Saurabh Das, Multitargeting antibacterial activity of a synthesized Mn<sup>2+</sup> complex of curcumin on gram-positive and gram-negative bacterial strains, *ACS Omega*, 2020, 5:16342-16357
8. Tanmoy Saha, Soumen Singha, Sanjay Kumar, Saurabh Das, Spectroscopy driven DFT computation for a structure of the monomeric Cu<sup>2+</sup>-curcumin complex and thermodynamics driven evaluation of its binding to DNA: Pseudo-binding of curcumin to DNA, *Jour. Mol. Struct.* 2020, 1221:128732.

### Prof. Tapan Kumar Mondal

1. L. Patra, K. Aich, S. Gharami, T. K. Mondal, Fabrication of a new fluorogenic probe for detection of phosgene in solution and vapor phase, *Sens. Actuators, B*, 326, 128837, 2021.
2. S. Biswas, C. K. Manna, R. Naskar, A. Das, T. K. Mondal, Synthesis of new rhodium(III) complex by benzylic C-S bond cleavage of thioether containing NNS donor Schiff base ligand: Investigation of catalytic activity towards transfer hydrogenation of ketones, *Inorg. Chim. Acta*, 515, 120096, 2021.
2. S. Acharyya, S. Gharami, D. Sarkar, P. Ghosh, N. Murmu, T. K. Mondal, A thioether containing reversible fluorescence “turn-on” chemosensor for selective detection of zinc(II): Applications in live cell imaging and inhibit logic gate, *J. Mol. Struct.*, 1224, 129179, 2021.
3. M. Roy, D. Biswal, O. Sarkar, N. R. Pramanik, S. Paul, C. K. Manna, T. K. Mondal, S. Chakrabarti, Synthesis, characterization, DFT calculations, protein binding and molecular docking studies of mononuclear dioxomolybdenum (VI) complexes with ONS donor ligand, *J. Mol. Struct.*, 1234, 130192, 2021.
4. C. K. Manna, R. Naskar, B. Bera, A. Das, T. K. Mondal, A new palladium (II) phosphino complex with ONS donor Schiff base ligand: synthesis, characterization and catalytic activity towards Suzuki-Miyaura cross-coupling reaction, *J. Mol. Struct.*, 1237, 130322, 2021.
5. L. Patra, P. Ghosh, S. Das, S. Gharami, N. Murmu, T. K. Mondal, A selective fluorogenic chemosensor for visual detection of chemical warfare reagent mimic diethylchlorophosphate, *J. Photochem. Photobiol. A*, 388, 112188, 2020.
6. P. Roy, D. Sarkar, P. Ghosh, C. K. Manna, N. Murmu, T. K. Mondal, Synthesis of luminescent rhodium(III) cyclometalated complex by sp<sup>2</sup>(C)-S bond activation: Application as catalyst in transfer hydrogenation of ketones and live cell imaging, *J. Mol. Struct.*, 1204, 127524, 2020.
7. S. Gharami, K. Aich, P. Ghosh, L. Patra, N. Murmu, T. K. Mondal, A simple coumarin based “fluorescent On” probe for the selective detection of Al<sup>3+</sup> along with its application in live cell imaging via AGS cell line, *J. Photochem. Photobiol. A*, 390, 112294, 2020.
8. S. Jana, R. Naskar, C. K. Manna, T. K. Manna, Synthesis, characterization, X-ray structure and DNA binding study of palladium (II) complex with new thioether containing ONS donor ligand, *J. Chem. Sci.*, 132, 1-9, 2020.
9. S. Gharami, K. Aich, P. Ghosh, L. Patra, N. Murmu, T. K. Mondal, An ICT based fluorescent reversible “ON-OFF-ON” switch for the selective and sequential detection of Hg<sup>2+</sup> and I<sup>-</sup> with application in imaging using human AGS gastric cancer cell, *Dalton Trans.*, 49, 187-195, 2020.

## Annual Report 2020-2021

### Dr. Umesh Chandra Halder

1. Sampa Pal, Sanhita Maity, Subrata Sardar, Shahnaz Begum, Ramkrishna Dalui, Hasan Parvej, Kaushik Bera, Anirban Pradhan, Nayim Sepay, Swarnali Paul & Umesh Chandra Halder, 'Antioxidant ferulic acid prevents the aggregation of bovine  $\beta$ -lactoglobulin in vitro', *J ChemSci*, **132**, 103, 2020. <https://doi.org/10.1007/s12039-020-01796-z>
2. Nayim Sepay, Nadir Sepay, Ashique Al Hoque, Rina Mondal, Umesh Chandra Halder, Mohd. Muddassir, 'Insilico fight against novel coronavirus by finding chromone derivatives as inhibitor of coronavirus main proteases enzyme', *Structural Chemistry*, **31**, 1831–1840, 2020.
3. Nayim Sepay, Aishwarya Sekar, Umesh Chandra Halder, Abdullah Alarifi, Mohd. Afzal, 'Anti-COVID-19 terpenoid from marine sources: A docking, admet and molecular dynamics study' *Journal of Molecular Structure*, **1228**, 129433, 2021. <https://doi.org/10.1016/j.molstruc.2020.129433>
4. Sanhita Maity, Nayim Sepay, Sampa Pal, Subrata Sardar, Hasan Parvej, Swarnali Pal, Jishnu Chakraborty, Anirban Pradhan and Umesh Chandra Halder, 'Modulation of amyloid fibrillation of bovine b-lactoglobulin by selective methionine oxidation', *RSC Adv.*, **11**, 11192-11203, 2021. DOI: 10.1039/d0ra09060c
5. Nayim Sepay, Pranab Chandra Saha, Zarrin Shahzadi, Aratrika Chakraborty and Umesh Chandra Halder, 'A crystallography-based investigation of weak interactions for drug design against COVID-19', *Phys. Chem. Chem. Phys.*, **23**, 7261, 2021. DOI: 10.1039/d0cp05714b.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

#### Prof. Swapan Kumar Bhattacharya

1. S Chatterjee, M. Chakraborty, KK Bera, A Mahajan, S Banik, PS Roy, SK Bhattacharya, Catalytic reduction of 4-nitrophenol to 4-aminophenol using an efficient Pd nanoparticles, *IOP Conference Series: Materials Science and Engineering*, 012010, IOP Publishing, 1757-8981, 2021.
2. KK Bera, M Chakraborty, SK Bhattacharya, Anodic oxidation of sodium formate and methanol on Pd and Pt electrodes in alkali: a comparative study, *IOP Conference Series: Materials Science and Engineering*, 012013, IOP Publishing, 1757-8981, 2021.
3. S Chatterjee, SK Bhattacharya, A review of NiO based composite electrode materials for electrochemical energy storage, *IOP Conference Series: Materials Science and Engineering*, 012009, IOP Publishing, 1757-8981, 2021.
4. M Mandal, K Chattopadhyay, SK Bhattacharya, Sunlight mediated photocatalytic reduction of aqueous Cr (VI) using metal hexacyanoferrate (M= Mn, Ni, Cu and Zn), *IOP Conference Series: Materials Science and Engineering*, 012047, IOP Publishing 1757-8981, 2021.

### H. Research Collaboration with other Departments/Institutes/Industries:

#### Dr. Bibhuti Bhushan Show

- a. Department of Chemistry, IEST, Shibpur, Howrah, West Bengal, India.
- b. Department of Civil and Environmental Engineering, Birla Institute of Technology, Mesra, Ranchi, Jharkhand 835215, India.
- c. Department of Chemistry, Banaras Hindu University, Uttar Pradesh, Varanasi 221005, India.

#### Professor Nitin Chattopadhyay

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
N. Chattopadhyay	S. Mukherjee and S. Chakrabarty	S. N. Bose National Centre for Basic Sciences, Kolkata	Coworker	3 years
	K. Dutta and	Amity University	Coworker	2 years



## Annual Report 2020-2021

	D. Poddar			
	S. K. Saha	Indian Association for the Cultivation of Science	Coworker	1 year

### Prof. Rina Ghosh

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Rina Ghosh	Dr. Ujir Hossain	Cittaranjan Cancer Research Institute, Kolkata	Myself as CI of a CSIR project	1.1.2021 to 31.12.2023

### Prof. Samaresh Bhattacharya

Have been doing collaborative research with Prof. Saurabh Das (Dept. of Chemistry, JU); Prof. Parimal Karmakar (Dept. of Life Science and Biotechnology, JU); and Prof. Michael G. Richmond of University of North Texas, USA.

### Dr. SAMIT GUHA

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Dr. SAMIT GUHA	Prophecy Sensorlytics India Pvt. Ltd.	Industry	Testing and Consultancy Work	6 weeks

### Dr. Chittaranjan Sinha

- a. Prof. Elena Lopez Torres, Departamento de Química Inorgánica, c) Francisco Tomás y Valiente, 7, Universidad Autónoma de Madrid, Cantoblanco, 28049-Madrid, Spain.
- b. Prof. Takashiro Akitsu, Department of Chemistry, Faculty of Science, Tokyo University of Science 1-3 Kagurazaka, Shinjuku-ku, Tokyo 162-8601, Japan
- c. Dr. M. H. Mir, Department of Chemistry, Aliah University, Rajarhat, Kolkata, India
- d. Dr. Sudip Majumder, Amity School of Applied Sciences, Amity University, Haryana
- e. Dr. Kuladip Jana, Division of Molecular Medicine, Bose Institute, Kolkata-700056, India.

### Dr. Sujoy Baitalik

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Sujoy Baitalik	Ranjan Jana	Indian Institute of Chemical Biology	Exploring some interesting visible-light induced catalytic reactions	2020-2021

## 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

### C. Seminar/Workshop/Conference/Symposium Organized: (Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

#### Dr. Chittaranjan Sinha

- i) Convener & Secretary for the Celebration of 159<sup>th</sup> Birth Anniversary of Acharya P C Ray and International Seminar on "Recent Advances in Chemistry & Material Sciences-2020 (RACMS-

## Annual Report 2020-2021

- 2020” on 2-3/8, 8/8, 15/8 and 22/8/2020. Talk on “The Design of Molecule and Molecular Frame Towards Deliverable Properties”.
- ii) Convener & Secretary to the 57<sup>th</sup> Annual Convention of Chemists 2020 & International Conference on Recent Trends in Chemical Sciences (RTCS) held on December 26-29, 2020 in Indian Chemical Society.
- iii) National Science Day Celebration on 28, February, 2021 in virtual mode and Students Competition. Seminar on "Material Chemistry -Today and Tomorrow" on 01/03/2021 organised by the Indian Chemical Society and Prof. C. Sinha is the Honorary Secretary and Chief Convener of the program.

### Prof. Sanjay Bhar

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Refreshers Course in Chemistry, 2021	Professor Sanjoy Bhar	‘Chemical Sciences: From Concepts to Applications’	Jadavpur University	19 th January, 2021

### Dr. Sujoy Baitalik

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Emerging Trends in Chemical Sciences	<b>Prof. Kajal K. Rajak</b> (Convener) <b>Dr. Samit Guha</b> (Co-Convener)		Jadavpur University, Kolkata - 700032	07.01.2020
Recent Trends in Inorganic Chemistry	<b>Prof. Samaresh Bhattacharya</b> (Convener) <b>Prof. Kajal K. Rajak</b> (Convener) <b>Dr. Manas Panda</b> (Convener)		Jadavpur University, Kolkata - 700032	06.03.2020

- D. Refresher Courses Organized:**  
(Name of the Teachers, Title of the Course, if any, Duration, Place):

### Dr. Arunabha Thakur

Title of the Course	Name of the Coordinator (s)	Place	Date
Chemical Sciences: from concepts to applications	<b>Arunabha Thakur</b>	Jadavpur University	6 January, to 20 January, 2021

- E. Orientation Courses/ Refresher Courses Attended**

### Dr. Amit Saha

Name of the Teacher	Title of the Course	Place	Date
<b>Dr. Amit Saha</b>	Refresher Course: Chemical Sciences: From Concepts to Applications (RCCHEM2021)	Dept. of Chemistry, Jadavpur University	6 January, 2021 – 20 January, 2021

## Annual Report 2020-2021

### Dr. Asamanjoy Bhunia

Name of the Teacher	Title of the Course	Place	Date
Dr. Asamanjoy Bhunia	2nd Faculty Induction Programme held	Jadavpur University	01.02.2021

### Dr. Bibhuti Bhushan Show

1. **RC2021 in Chemical Sciences: From concepts to applications**, UGC-HRDC, Jadavpur University, Kolkata, from 06.01.2021 to 20.01.2021, Online Refresher Course.

### Dr. Chittaranjan Sinha

- i) Invited Talk on 21/09/2020 and 22/09/2020 to the UGC-HRDC refresher course entitled “Emerging trends in chemistry” held in the School of Chemical Science, Pt. Ravishankar Shukla University: Raipur.
- ii) Invited Talk in the UGC-HRDC Refresher Course entitled, “NATURAL AND BIOSCIENCES” held on 24.11.2020 to 07.12.2020 in the Department of Environmental Science, Burdwan University. Title of Talk, “Sustenance of Life: Towards The Trace Amount of Detection of Biologically Important Ions” on 25/11/2020.
- iii) The UGC-HRDC, Sant Gadge Baba Amravati University Refresher Course in Chemistry entitled, “CHEMISTRY – RECENT TRENDS IN CHEMISTRY EDUCATION AND RESEARCH” held on 23<sup>rd</sup> November 2020 to 5<sup>th</sup> December 2020. Invited Talk on 03/12/2020 entitled, “Towards The Trace Amount Detection of Biologically Important Ions for the Sustainable Development”.
- iv) Chairman of the UGC-HRDC Refresher Course in the Department of Chemistry, J. U. entitled, “Chemical Sciences: From Concepts to Applications (RCHEM2021)” during *January 06, 2021 – January 20, 2021*.
- v) Invited Talk on 23/02/2021 to the UGC-HRDC refresher course entitled “Emerging trends at the interface of chemistry & biology” during February 11 to 24, 2021 held in the Department of Environmental Science, Burdwan University. Title of Talk, “Sustenance of Life: Towards The Trace Amount of Detection of Biologically Important Ions”.
- vi) The UGC-HRDC Refresher Course in Chemistry held on 16 – 31 March, 2021 in the Department of Chemistry, University of Calcutta. Delivered Invited Talk on 18/03/2021 entitled, “Organic-Inorganic Hybrid Materials: Design, Characterization and Applications”.

### Dr. Manas Kumar Panda

Name of the Teacher	Title of the Course	Place	Date
Manas Kumar Panda	UGC-HRDC Faculty Induction Program-4	University of Calcutta	3-30 March, 2021

### Dr. Partha Mahata

Name of the Teacher	Title of the Course	Place	Date
Dr. Partha Mahata	Chemical Sciences: From Concepts to Applications	Jadavpur University	06/01/2021 to 20/01/2021

### Prof. Rina Ghosh

Name of the Teacher	Title of the Course	Place	Date
Rina Ghosh	Asymmetric synthesis with special reference to catalytic asymmetric reduction and oxidation reactions	Calcutta University	25 March, 2021
Rina Ghosh	Asymmetric Synthesis with Special Reference to Catalytic Asymmetric Reactions	Jadavpur University	8 January, 2020

## Annual Report 2020-2021

### Dr. Samit Guha

Name of the Teacher	Title of the Course	Place	Date
Dr. Samit Guha	Participated in Subject Specific Refresher Course, Chemistry (Course Code: RCCHEM2021) at UGC-HRDC Jadavpur University.	UGC-HRDC Jadavpur University.	6 January-20 January 2021

### F. Invited Lectures Delivered/Sessions Chaired:

#### Dr. Amit Saha

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Dr. Amit Saha (Invited Lectures Delivered)	Resource Person	Webinar Series on "Sustainable Living" Topic: Chemistry in Managing Coronavirus Outbreak & for a Better Living Tomorrow	Raidighi College (South 24 Parganas, WB)	22.08.2020

#### Prof. Ambikesh Mahapatra

Invited Lectures Delivered/Sessions Chaired: 3

#### Dr. Arunabha Thakur

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Arunabha Thakur	Delivered an invited lecture	Advancement in the Molecular World: Materials and Catalysis	NIT Surathkal	17 Feb, 2021
Arunabha Thakur	Invited lecture	One day Symposium on Chemical Science	CHEMICAL RESEARCH SOCIETY OF INDIA, IISER Kolkata	6 November, 2020.

#### Dr. Chittaranjan Sinha

- i) Invited Talk on 21/09/2020 and 22/09/2020 to the UGC-HRDC refresher course entitled "Emerging trends in chemistry" held in the School of Chemical Science, Pt. Ravishankar Shukla University: Raipur.
- ii) Invited Talk in the "Medicinal Chemistry for the Society" held on 06/10/2020 in Bhagalpur University. Title of Talk: "Metals as Medicine : Impact of Ions on Sustainable Health".
- iii) Invited Talk on 23/11/2020 in Two days National Webinar on "*Recent Advancements in Chemical and Environmental Sciences & Technology (RACEST-2020)*" Organised by Department of Chemistry, Guru Ghasi Das University and Indian Association of Nuclear Chemists and Allied Scientists (IANCAS) Mumbai on 23-24 November, 2020. Title of Talk, "New Direction in Coordination Chemistry: Applications of Organic-Inorganic Hybrid Materials"
- iv) Invited Talk in the UGC-HRDC Refresher Course entitled, "NATURAL AND BIOSCIENCES" held on 24.11.2020 to 07.12.2020 in the Department of Environmental Science, Burdwan University.

## Annual Report 2020-2021

- Title of Talk, "Sustenance of Life: Towards The Trace Amount of Detection of Biologically Important Ions" on 25/11/2020.
- v) Invited Talk on 03/12/2020 entitled, "Towards The Trace Amount Detection of Biologically Important Ions for the Sustainable Development" in the UGC-HRDC, Sant Gadge Baba Amravati University Refresher Course in Chemistry entitled, "CHEMISTRY – RECENT TRENDS IN CHEMISTRY EDUCATION AND RESEARCH" held on 23 November 2020 to 5 December, 2020.
  - vi) Invited Talk in the lecture workshop on "Chemical Sciences: Basics and its Applications" in the Department of Chemistry, Cooch Behar Panchanan Barma University, Cooch Behar, WB, India on February 11-12, 2021. Title of Talk, "Use of Symmetry and Group Theoretical treatment for meaningful explanation of Molecular Spectroscopy"
  - vii) Invited Talk on 23/02/2021 to the UGC-HRDC refresher course entitled "Emerging trends at the interface of chemistry & biology" during February 11 to 24, 2021 held in the Department of Environmental Science, Burdwan University. Title of Talk, "Sustenance of Life: Towards The Trace Amount of Detection of Biologically Important Ions".
  - viii) Invited talk in Heritage Institute of Technology, Kolkata, Department of Biotechnology in the International Webinar on 'Biotechnology for Human Welfare' held on 4-5 March, 2021. Title, "Analytical Perspectives of Environmentally Important Ions: Challenges for Sustainable Development".
  - ix) Invited Talk on 18/03/2021 entitled, "Organic-Inorganic Hybrid Materials: Design, Characterization and Applications" in the UGC-HRDC Refresher Course in Chemistry held on 16–31 March, 2021 in the Department of Chemistry, University of Calcutta.
  - x) Invited talk on 9 March, 2021 entitled, "Design, Characterization and Applications of Organic-Inorganic Hybrid Materials" in the National Seminar on "Recent Advances in Material Chemistry" (RAMC 2021) during 8 -9 March, 2021 in the Department of Chemistry, Utkal University.
  - xi) Invited talk entitled, "Analytical Perspectives of Biologically Important Ions : Challenges for Sustainable Development" in the Foundation for Technology & Business Incubation, NIT Rourkela organised **Innovation Carnival 2021 from 22 - 26 March, 2021**. Inaugural Talk on Science Carnival in NIT, Rourkela held on 22/3/21.

### Prof. Jnan Prakash Naskar

1. Performed as a Resource Person in the capacity of delivering Invited Talk in the UGC-Human Resource Development Centre, Jadavpur University, Kolkata sponsored Refresher Course in Chemistry entitled "Chemical Sciences: From Concepts to Applications (RCCHEM2021)" held in the Department of Chemistry, Jadavpur University, Kolkata: 700 032, India during January 06-20, 2021  
Date of the invited talk: 08.01.2021 at 10:30 am; Title of the talk: "Preliminaries of Electrochemical Techniques"
2. Performed as a Resource Person in the capacity of delivering Invited Talk in the UGC-Human Resource Development Centre, University of North Bengal, Darjeeling sponsored Refresher Course entitled "Emerging trends at the interface of chemistry & biology" held during 11-24 February, 2021 vide reference number: HRDC/RC-Chem/2021/RP/06 dated: 06/02/2021  
Date of the invited talk: 15.02.2021 from 10:30 am –12:00 noon; Title of the talk: "Some Selected Copper(II) Complexes from the Perspective of Chemistry and Biology"

### Dr. Manas Kumar Panda

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Manas Kumar Panda	Invited Lecture	One day Webinar on "Engineering of Smart Materials: laboratory to Industry"	Dr. B. C Roy Engineering College, Durgapur	8 January, 2021

### Annual Report 2020-2021

<b>Manas Kumar Panda</b>	Invited Lecture	Faculty Development Program on “Recent Advances in Molecular Chemistry and Functional Materials”	Amity Institute of Click Chemistry Research and Studies, Amity University, Noida	17-21 August, 2020
<b>Manas Kumar Panda</b>	Invited Lecture	Online workshop on “Smart Materials: Concept, Design and Applications (SMCDA)”	National Institute of Technology (NIT) Uttarakhand	07-11 September, 2020.
<b>Manas Kumar Panda</b>	Invited Lecture	Online short-term Training Program on “Emerging trends in Chemical Sciences and its Applications in Environment and Engineering”	Jabalpur Engineering College Jabalpur sponsored by TEQIP III	26-30 September, 2020

#### **Professor Nitin Chattopadhyay**

<b>Name of the Teacher</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>N. Chattopadhyay</b>	Invited Speaker	National Seminar on Recent advances in Materials Chemistry (RAMC-2021)	Utkal University, Odisha	08-09 March, 2021
	Resource Person	UGC Refresher Course in Chemistry	Chemistry Department, Jadavpur University	06-20 January, 2021
	Invited Speaker	Department of Chemistry, Guru Nanak Dev University	Amritsar, Punjab	16 December, 2020

#### **Prof. Samaresh Bhattacharya**

- Delivered an invited talk on **02-10-2021** at the one day national webinar on “*Advancement of Chemistry at 21st Century*”, at the Department of Chemistry, Raja N L Khan Women’s College, Midnapore.
- Participated in the 27<sup>th</sup> CRSI-NSC meeting organized by IISER Kolkata, and chaired a session (Lecture by an Honorary Fellow of CRSI; Prof. David Milstein, Israel) on **29-09-2021**.
- Delivered an invited talk (on **02-09-2021**) as a “resource person” in the 5-days Faculty Development Program on "Emerging Areas in Biological and Chemical Sciences", at the JIS University.
- Delivered an invited talk at Jawaharlal Nehru University, New Delhi, on **5th August 2021**.
- Participated in the International Seminar on Recent Advances in Chemistry and Material Science (RACMS-2021) organized by the Indian Chemical Society during August 01-08, 2021 in Celebration of the 160th Birth Anniversary of Acharya Prafulla Chandra Ray, and served as the Chairperson of the Invited Lecture Session (on **02-08-2021**).

## Annual Report 2020-2021

6. Delivered an invited talk (on **10-03-2021**) as a “resource person” in the Faculty Induction Programme in the Department of Education, Jadavpur University.
7. Delivered an invited talk (on **05-03-2021**) in the Department of Chemistry, NIT-Durgapur.
8. Participated in the 2nd Research conclave of NIT Meghalaya, and delivered a talk on **1st March 2021**.
9. Delivered an invited talk (on **20-02-2021**) as a “resource person” in the Faculty Induction Programme in the Department of Education, Jadavpur University.
10. Delivered an invited talk in IIT-Kharagpur on 07-11-2020.
11. Delivered an invited talk (on **02-10-2020**) in the Department of Chemistry, Bhagalpur University.
12. Delivered an invited talk (on **19-09-2020**) in the Department of Chemistry, KIIT, Bhubaneswar.

### Dr. Samit Guha

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Dr. Samit Guha</b>	Resource Person	Refresher Course in Chemistry (Theme: <i>Recent Advances in Chemistry</i> ) for college and university teachers during March 16 – March 31, 2021. Title of invited talk: “Synthetic Molecular Machines”.	Organized by UGC-HRDC, University of Calcutta.	Duration: 1.5 hr, 17 March, 2021, Wednesday; 2.00 pm- 3.30 pm
<b>Dr. Samit Guha</b>	Chairperson	Chairperson in International Conference on Recent Advances in Chemistry and Material Sciences - 2020 (RACMS -2020)	Organized by the <b>Indian Chemical Society</b> to commemorate the 159 <sup>th</sup> birth anniversary of <b>AcharyaPrafulla Chandra Ray</b>	15 August, <b>2020</b>
<b>Dr. Samit Guha</b>	Invited Speaker	“Design and Applications of Artificial Molecular Machines”. Samit Guha* International Webinar	Organized by The Department of Chemistry and the Department of Zoology in association with IQAC, Raja Peary Mohan College, Uttarpara, Hooghly, India,	Duration 1 hr, 12 August, <b>2020</b> .
<b>Dr. Samit Guha</b>	Invited Speaker	“Smart Molecules for Targeted Therapy and Imaging”. Samit Guha* One Day National Webinar on Interface of Chemistry & Biology: A Molecular Approach	Krishnagar Government College, Department of Chemistry & IQAC, Krishnagar, Nadia, W.B, India,	Duration: 1 hr 14 July, 2020.
<b>Dr. Samit Guha</b>	Invited Speaker	“Smart Molecules for Targeting, Imaging and Health”.	Dr. Meghnad Saha College, Department of Chemistry, Itahar,	Duration: 1 hr, 6 July, 2020.

### Annual Report 2020-2021

		Samit Guha* One Day Online National Seminar on Chemistry of Health & Wellness.	Uttar Dinajpur, India,	
--	--	--	------------------------	--

#### Prof. Sanjay Bhar

1. “Green Chemistry & Chemistry of Natural Products” at the Four-Day National Webinar on Discipline Specific Elective (DSE) Topics of UG Chemistry (Hons.), CBCS Syllabus, University of Calcutta, on 7 August, 2020 (3-00 pm).
2. “Green Chemistry-What, Why and How” at the National Webinar on “Awareness about Green Chemistry and Nanotechnology” at Krishnath College, on 17 September, 2020 (12-30pm).

#### Prof. Shouvik Chattopadhyay

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Shouvik Chattopadhyay	Speaker	RSC-IISER Desktop Seminar with Cryst Eng Comm on Crystal Engineering organised in association with IISER Kolkata on 22nd and 23rd Sept	Online	20 minutes
Sujoy Baitalik	Chaired	Recent Trends in Chemistry at the Interface with Biology	Bagnan College, Khalore, P.O.- Bagnan, District:- Howrah; West Bengal, PIN - 711303	30-31 August, 2020
Sujoy Baitalik	Delivered a lecture	Contemporary Research in Chemical Sciences	Uluberia College, Uluberia, Howrah, West Bengal, PIN - 711315	2 March, 2020
Sujoy Baitalik	Delivered a lecture	Inorganic Chemistry Discussion Meeting	IISER Kolkata, Campus Road, Mohanpur, West Bengal, PIN - 741246	15 January, 2020
Sujoy Baitalik	Delivered a lecture	International Conference on Chemistry for Human Development (ICCHD-2020)	Heritage Institute of Technology Chowbaga Rd, Anandapur, Mundapara, Kolkata, West Bengal 700107	9-11 January, 2020



## Annual Report 2020-2021

**Prof. Saurabh Das**

- Invited Lecture at:** A two-days national webinar on RECENTTRENDS IN CHEMISTRY AT THE INTERFACE WITH BIOLOGY organized by the Department of Chemistry, Bagnan College.  
Duration of the webinar: August 30 & 31, 2020.
- Title of talk:** Metal complexes of 5-nitroimidazoles strike a balance between efficacy and adverse effects.
- Served as:** Scientist-in-Charge of Inorganic Chemistry Section at International Conference (webinar) on Recent Trends in Chemical Sciences (RTCS) and 57th Annual Convention of Chemists (ACC) between 26th and 29th December, 2020 on the google meet platform.

**Dr. Tanurima Bhaumik**

Name of the Teacher	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Dr. Tanurima Bhaumik</b>	Resource Person to deliver one Lecture	UGC-approved online Refresher Course entitled "Chemical Sciences: from Concepts to Applications" from 06-01-2021 to 20-01-2021 for College and University Teachers.	Online Refresher Course organized by the Department of Chemistry, Jadavpur University under the auspices of HRDC, JU	20-01-2021 2:10 pm to 3:40 pm,
<b>Dr. Tanurima Bhaumik</b>	acted as the Chairperson of a session	UGC-approved online Refresher Course entitled "Chemical Sciences: from Concepts to Applications" from 06-01-2021 to 20-01-2021 for College and University Teachers.	Online Refresher Course organized by the Department of Chemistry, Jadavpur University under the auspices of HRDC, JU	19-01-2021 3:50 pm to 5:20 pm
<b>Dr. Tanurima Bhaumik</b>	acted as the Chairperson of a session	UGC-approved online Refresher Course entitled "Chemical Sciences: from Concepts to Applications" from 06-01-2021 to 20-01-2021 for College and University Teachers.	Online Refresher Course organized by the Department of Chemistry, Jadavpur University under the auspices of HRDC, JU	08-01-2021 3:50 pm to 5:20 pm

**Dr. Umesh Chandra Halder**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Professor Umesh Chandra Halder	As a resource person	Refresher Course On Chemical Sciences: From Concepts to	Organised by Dept. of Chemistry, Jadavpur University	90 minutes

## Annual Report 2020-2021

		Applications (RCCHEM 2021) Jan. 06-20, 2021		
--	--	---	--	--

### H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:

#### Dr. Amit Saha

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Dr. Amit Saha	International Seminar on Recent Advances in Chemistry and Material Sciences-2020 (RACMS-2020)	Indian Chemical Society, Kolkata, WB	2, 3, 8, 15, 22, 29 August, 2020

#### Dr. Bibhuti Bhushan Show

1. UGC-SAP Sponsored National Seminar on "Advances in Nanoscience and Nanotechnology applications" organized by Chemical Engineering Department, Jadavpur University on 10<sup>th</sup> January, 2020.
2. A Seven-Day national Workshop-Cum-Hands on Training Programme on "Transmission Electron Microscopy", 25 February - 2 March, 2020, University of Burdwan, West Bengal.

#### Dr. Chittaranjan Sinha

- i) Convener & Secretary for the Celebration of 159<sup>th</sup> Birth Anniversary of Acharya P C Ray and International Seminar on "Recent Advances in Chemistry & Material Sciences-2020 (RACMS-2020)" on 2-3/8, 8/8, 15/8 and 22/8/2020. Talk on "The Design of Molecule and Molecular Frame Towards Deliverable Properties".
- ii) Invited Talk on 21/09/2020 and 22/09/2020 to the UGC-HRDC refresher course entitled "Emerging trends in chemistry" held in the School of Chemical Science, Pt. Ravishankar Shukla University: Raipur.
- iii) Invited Talk in the "Medicinal Chemistry for the Society" held on 06/10/2020 in Bhagalpur University. Title of Talk: "Metals as Medicine: Impact of Ions on Sustainable Health".
- iv) Convener & Secretary to the 57<sup>th</sup> Annual Convention of Chemists 2020 & International Conference on Recent Trends in Chemical Sciences (RTCS) held on December 26-29, 2020 in Indian Chemical Society.
- v) Invited Talk on 23/11/2020 in two-days National Webinar on "Recent Advancements in Chemical and Environmental Sciences & Technology (RACEST-2020)" Organised by Department of Chemistry, Guru Ghasi Das University and Indian Association of Nuclear Chemists and Allied Scientists (IANCAS) Mumbai on 23-24 November, 2020. Title of Talk, "New Direction in Coordination Chemistry: Applications of Organic-Inorganic Hybrid Materials"
- vi) Invited Talk in the UGC-HRDC Refresher Course entitled, "NATURAL AND BIOSCIENCES" held on 24.11.2020 to 07.12.2020 in the Department of Environmental Science, Burdwan University. Title of Talk, "Sustenance of Life: Towards The Trace Amount of Detection of Biologically Important Ions" on 25/11/2020.
- vii) The UGC-HRDC, Sant Gadge Baba Amravati University Refresher Course in Chemistry entitled, "CHEMISTRY – RECENT TRENDS IN CHEMISTRY EDUCATION AND RESEARCH" held on 23 November 2020 to 5 December 2020. Invited Talk on 03/12/2020 entitled, "Towards The Trace Amount Detection of Biologically Important Ions for the Sustainable Development".
- viii) Chairman of the UGC-HRDC Refresher Course in the Department of Chemistry, J. U. entitled, "Chemical Sciences: From Concepts to Applications (RCCHEM2021)" during January 06, 2021 – January 20, 2021.
- ix) Invited Talk in the lecture workshop on "Chemical Sciences: Basics and its Applications" in the Department of Chemistry, Cooch Behar Panchanan Barma University, Cooch Behar, WB, India on

## Annual Report 2020-2021

- February 11-12, 2021. Title of Talk, "Use of Symmetry and Group Theoretical treatment for meaningful explanation of Molecular Spectroscopy"
- x) Invited Talk on 23/02/2021 to the UGC-HRDC refresher course entitled "Emerging trends at the interface of chemistry & biology" during February 11 to 24, 2021 held in the Department of Environmental Science, Burdwan University. Title of Talk, "Sustenance of Life: Towards The Trace Amount of Detection of Biologically Important Ions".
- xi) National Science Day Celebration on 28, February, 2021 in virtual mode and Students Competition. Seminar on "Material Chemistry -Today and Tomorrow" on 01/03/2021 organised by the Indian Chemical Society and Prof. C. Sinha is the Honorary Secretary and Chief Convener of the program.
- xii) Invited talk in Heritage Institute of Technology, Kolkata, Department of Biotechnology in the International Webinar on "Biotechnology for Human Welfare" held on 4-5 March, 2021. Title, "Analytical Perspectives of Environmentally Important Ions : Challenges for Sustainable Development".
- xiii) The UGC-HRDC Refresher Course in Chemistry held on 16 – 31 March, 2021 in the Department of Chemistry, University of Calcutta. Delivered Invited Talk on 18/03/2021 entitled, "Organic-Inorganic Hybrid Materials : Design, Characterization and Applications".
- xiv) National Seminar on "Recent Advances in Material Chemistry" (RAMC 2021) during 8 -9 March, 2021 in the Department of Chemistry, Utkal University. Delivered a talk on 9 March, 2021 entitled, "Design, Characterization and Applications of Organic-Inorganic Hybrid Materials".
- xv) Foundation for Technology & Business Incubation, NIT Rourkela organised **Innovation Carnival 2021** from **22 - 26 March, 2021**. Inaugural Talk on Science Carnival in NIT, Rourkela held on 22/3/21 followed by invited talk entitled, "Analytical Perspectives of Biologically Important Ions : Challenges for Sustainable Development".

### Prof. Samaresh Bhattacharya

Attended several Symposia and Conferences within the country.

### Prof. Sanjay Bhar

Chemical Sciences: From Concepts to Applications (Course Code: RCCHEM2021) from 6 January, 2021 to 20 January 2021, Joint Coordinators: Prof. Sanjay Bhar and Dr. Arunabha Thakur, organized by the Department of Chemistry, JU under the auspices of the UGC–Human Resource Development Centre, Jadavpur University.

### Prof. Shouvik Chattopadhyay

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Shouvik Chattopadhyay	Delivered a lecture in PHD Coursework at West Bengal State University	Online	1 hour

### Prof. Soumen Ghosh

i) 1st International Virtual Conference on "Advances in Colloidal and Polymeric Systems (ACAPS-2020)", August 22 (Saturday), 2020 organized by Colloids and Polymers Research Group, School of Chemical Engineering, Vellore Institute of Technology, Vellore, India.

### Dr. Tanurima Bhaumik

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Dr. Tanurima Bhaumik	One-Day National Webinar on "Sustainable Synthesis of Pharmaceuticals and Basics of Drug Discovery"	Webinar organized by the Department of Chemistry, Krishnagar Government College, Krishnanagar, Nadia, West Bengal	25 July, 2020

## Annual Report 2020-2021

<b>Dr. Tanurima Bhaumik</b>	One-Day International Webinar on “Recent trends in Chemistry in the fields of Medicine and Industry”	Webinar organized by the Department of Chemistry, Presidency University, Kolkata	5 September, 2020
-----------------------------	--	--	-------------------

### 6. Major Achievements of the Department during the year:

#### D. Any Other Major Achievements:

##### Dr. Chittaranjan Sinha

- Publications of 22 articles in high impact journal at this pandemic time.
- Three Research Scholars (Dr. Sunanda Dey, Dr. Kaushik Naskar, Dr. Arup K Adak) awarded Ph.D. (Sc) degree during this period.
- Honorary Secretary, Indian Chemical Society, 2020-2022.

##### Prof. Samaresh Bhattacharya

Received the “Acharya P. C. Ray Memorial Award for the year 2019” in December 2020 from the Indian Chemical Society.

##### Prof. Soumen Ghosh

- Award of **Bronze Medal** from **Chemical Research Society of India (CRSI)** in **2020**.
- Selected as Top 2% World Ranking Scientist** in Chemical Physics by Scientists of Stanford University, USA in **2020-2021**.
- Appointed as **External Assessor** for promotion to Associate Professor and Professor at the Department of Chemistry, **Universiti Malaya**, 50603 Kuala Lumpur, Malaysia in 2021.

## GEOGRAPHY

Phone: 033-2457-3003

H.O.D: Prof. Lakshmi Sivaramakrishnan

Dr. Debajit Datta (Since 20.10.2020)

E-mail: hodgeography@jadavpuruniversity.in

### 1. Vision and Mission of the Department:

- A. Vision:** The Department of Geography under the Faculty of Science has been offering under graduate (B.Sc.) degree in Geography since 2015. This has been a long-standing vision of the Faculty of Science that has ultimately become fruitful. The Department has a vision to make it one of the best departments in West Bengal for which several plans and programmes are being chalked out like preparations of the most updated syllabus in Geography under the Science Faculty and students will be offered science subsidiary subjects allied to Geography. The Department also plans to develop a state of art Remote Sensing and GIS laboratory for the students so that they can have access to the most updated knowledge of this branch of Geography, which is emerging, as a potential area of recruitment. The Department has started the Post Graduate degree (M.Sc.) course in Geography from the academic year 2018-19. The Department also offers Ph.D programme in Geography which commenced from 2014-15. Future plans also include offering of a diploma course in Remote Sensing and GIS. The Department is hosted in the third and fourth floor of the Meghnad Saha Bhavan (Integrated Science Building).

## Annual Report 2020-2021

- B. Mission:** The Department of Geography under the Faculty of Science aims to provide scientific approach of understanding the subject and hence associates basic science subjects as subsidiary options. This is the only Department of Geography in West Bengal where Mathematics is compulsory at 10+2 level to get admission in B.Sc. or M.Sc. courses. The Department has very well-equipped Cartography, Environment, Geomorphology and GIS & RS laboratories which provide the students hands-on experience on the application of acquired theoretical knowledge. The Department has also included compulsory field studies for the students so that they can achieve exposure on both the physical and socio-economic parameters existing in the real world. Thus, the prime mission of the Department is to provide a holistic understanding of the subject to the students based on a goal-oriented curriculum of developing research aptitude as well as spatial analytical skills. Attainment of these goals will surely prepare the students to become proficient researchers and skilled environmental decision makers.

### 2. Academic Activities:

#### A. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.Sc. in Geography	03	1 <sup>st</sup> year	07
		2 <sup>nd</sup> year	15
		3 <sup>rd</sup> year	18
M.Sc. in Geography	02	1 <sup>st</sup> year	22
		2 <sup>nd</sup> year	20
Ph.D in Geography	-	-	16

#### B. New Programme/Course introduced during the year by the Department

Programme Name	Course Name	Date of Introduction	No. of Students enrolled
M.Sc. in Geography under CBSC	GEOG/MSc	2020	22

### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
1	0	2	3

### 4. Research Activities:

#### A. Areas of Research Activities:

(Broad Areas)

**Prof. Lakshmi Sivaramakrishnan:** Urban and Regional Planning, Rural Development, Environmental Assessments, Gender Issues, Urbanization and Related Aspects

**Dr. Debajit Datta:**

Wetland and Forest Management, Landscape Ecology, Biomass and Soil Carbon Assessment, Sustainable Tourism, Peri-Urban Environmental Change

**Dr. Arijit Majumder:**

Hydrology, Geomorphology

## Annual Report 2020-2021

### B. Major Research Projects:

Title of the Project	Type (Departmental/ Individual)	Name of the Principal Investigator	Funding Agency	Duration
Spatially Explicit Estimation of Wetland Carbon Stocks in the Contai-Baleshwar Coastal Stretch, India by Integrating Elemental Analysis and Geospatial Technologies	Individual	<b>Dr. Debajit Datta</b>	Science and Engineering Research Board, Department of Science and Technology, GoI Rs. 3,033,800/-	3 years (2018-2021)

### C. Doctoral Research Activities

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
2	6

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals) (Authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year)

#### **Prof. Lakshmi Sivaramakrishnan**

1. **Sivaramakrishnan L**, Bandyopadhyay S, Sarkar S, DentinhoTP (2020) Working Paper 17 – New or Renewed Town: Sustainable Urbanisation in Kolkata, *South Asian Democratic Forum*. ISSN NUMBER: 2506-8202
2. Bhowmick S and **Sivaramakrishnan L** (2021) Growth Behaviour of Census Towns in Kolkata Metropolitan Region, West Bengal, India. *Transaction of the Indian Institute of Geographers*, 43(1):81-92, ISSN 09709851

#### **Dr. Debajit Datta**

1. **Datta D**, Roy AK, Kundu A, Dutta D, Neogy S (2021) An alternative approach to delineate wetland influence zone of a tropical intertidal mudflat using geo-information technology. *Estuarine, Coastal and Shelf Science* 253:107308 (Elsevier, Impact Factor: 2.333)
2. Mazumder S, Saha J, Nandi G, Naskar M, Gayen J and **Datta D** (2021) Long-term monitoring of cropland transformation in Kolkata Metropolitan Area, India using open-source geospatial technologies. *SN Applied Sciences* 3:98-117 (Springer)
3. Sengupta C, Naskar M and **Datta D** (2021) Tea gardens and geographies of colonial exploitation. *Edge Effects*. <https://edge-effects.net/tea-plantations> (University of Wisconsin–Madison, USA)
4. **Datta D** and Sengupta C (2020) Insurgencies in Northeast India: the case of the Gorkhaland Movement. *Asian Studies: Journal of Critical Perspectives on Asia* 56(1):94-106
5. Nandi G, Neogy S, Roy AK, and **Datta D** (2020) Immediate disturbances induced by tropical cyclone Fani on the coastal forest landscape of eastern India: A geospatial analysis. *Remote Sensing Applications: Society and Environment* 20(2020):100407 (Elsevier)
6. Roy AK, Ghosh PK and **Datta D** (2020) Typological inventorization and rapid ecological health assessment of the wetlands of Medinipur Coastal Plain, India. *Folia Geographica* 62(2):22-47

#### **Dr. Arijit Majumder**

1. Sarkar B, Islam A, **Majumder A** (2021). Seawater intrusion into groundwater and its impact on irrigation and agriculture: Evidence from the coastal region of West Bengal, India. *Regional Studies in Marine Science*, 44, 101751 (Elsevier).

## Annual Report 2020-2021

**E. Research Articles Published in Edited Volumes during the year:**  
(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

**Prof. Lakshmi Sivaramakrishnan**

1. **Sivaramakrishnan L**, Ray Bardhan A (2020) Health and Well-Being of Ageing Population in India: A Case Study of Kolkata. In: Singh RB, Srinagesh B, Anand S (Eds.) *Urban Health Risk and Resilience in Asian Cities*, Springer Nature Singapore Pvt. Ltd., pp. 217-230. ISBN 978-981-15-1205-6 (eBook)
2. **Sivaramakrishnan L**, Karmakar R (2020) Urban Infrastructure and Service Delivery in Kolkata Slums. In: Jamal S, Singh AL (Eds.) *Water Supply for the Urban Poor in Indian Cities : issues and Challenges*, B.R. Publishing Corporation, New Delhi, pp. 57-70. ISBN 9789388789851

**Dr. Debajit Datta**

1. Roy AK, Mitra S, and **Datta D** (2021) How does tourism affect urban ecological standards? a geospatial analysis of wetland transformations in the coastal resort town of Digha, West Bengal, India. In: Sharma P (Ed.) *Geospatial Technology and Smart Cities*. Springer, Switzerland. ISBN: 978-3-030-71944-9
2. Ray Ahmed A., Roy AK, Mitra S, and **Datta D** (2021) Effects of Cyclone Fani on the urban landscape characteristics of Puri town, India: a geospatial study using free and open source software. In: Shit PK *et al.* (Eds.) *Mapping, Monitoring and Modelling Land and Water Resources: Advanced Techniques Using Open Source Software*. CRC Press, UK. ISBN: 978-03-674868-3-9
3. Roy AK, Naskar M, Chakraborty T, Neogy S and **Datta D** (2021) Assessing the impact of aquafarming on landscape dynamics of coastal West Bengal, India using remotely sensed data and spatial metrics. In: Rani M *et al.* (Eds.) *Remote Sensing of Ocean and Coastal Environments*. Elsevier, New York. ISBN: 978-012-8-19604-5
4. Deb S and **Datta D** (2020) Basics of remote sensing and GIS and applications in agriculture. In: Rakshit A *et al.* (Eds.) *Handbook of Agriculture, Environment and Biotechnology*. Association of Agriculture, Environment and Biotechnology, New Delhi, India. ISBN: 978-81-948260-0-2
5. Chakraborty S, Roy AK, Majumdar D, Saha S and **Datta D** (2020) Monitoring of urban expansion and land use/ land cover changes of Siliguri Jalpaiguri Development Area of Northern West Bengal. In Basak A (Ed) *Contemporary Issues of Urbanization in North Bengal*. Lap Lambert Academic Publishing, Mauritius. ISBN: 978-620-2-80140-9

**H. Research Collaboration with other Departments/Institutes/Industries**

Name of the Teacher(s)	Name of the Collaborator (s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Dr. Debajit Datta	Dr. Shovik Deb	Uttar Banga Krishi Vishwavidyalaya	Individual	10 years
	Dr. Yajie Liu	UiT The Arctic University of Norway		04 years
	Dr. Dipanwita Dutta	Vidyasagar University		01 year

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
<b>Dr. Debajit Datta</b>	UGC sponsored Refresher Course on 'Information and Communication Technology'	University of Hyderabad	24 August, - 5 September, 2020

**Annual Report 2020-2021**

Dr. Arijit Majumder	UGC sponsored Refresher Course on 'Earth Sciences- Exo Meteorology'	Savitribai Phule Pune University, Pune	4 - 17 January, 2021
---------------------	---	--	----------------------

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher/ RS</b>	<b>Type of Participation</b>	<b>Name of the Conference/ Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Lakshmi Sivaramakrishnan</b>	Resource Person	Special Lecture	Department of Geography, University of Mizoram	6 May, 2020
	Resource Person	Special Lecture	East Calcutta Girls' College	12 September, 2020
	Resource Person	National Webinar on Mapping Contours of Geography in 21 <sup>st</sup> Century: Challenges Ahead	Department of Geography, North-Eastern Hill University, Shillong	23-24 March, 2021
<b>Dr. Debajit Datta</b>	Invited lecture	National Webinar on ' <i>Sundarban - Its Livelihood and Sustainability</i> '	South Asian Institute for Advanced Research and Development, Kolkata	22 November, 2020
	Invited lecture	International Webinar on ' <i>Climate Change and Urban Environment: Patterns, Externalities and Mitigation</i> '	Women's Christian College, Kolkata	11 September, 2020
	Invited lecture	National Webinar on ' <i>Environment and Sustainability: Land, Water and Ecosystem Perspective</i> '	Kashipur Michael Madhusudan Mahavidyalaya, Purulia	31 August, 2020
	Invited lecture	National Webinar on ' <i>Climatic Hazards and Resilience</i> '	Sree Chaitanya College, Habra	18 July, 2020
	Invited lecture	National Webinar on 'Impacts of Cyclonic Disturbances on the Coastal Areas of Odisha and West Bengal'	PCM College, Kolkata	11 July, 2020
<b>Dr. Arijit Majumder</b>	Invited lecture	State-level Webinar on ' <i>Standing at the cross-way after the Pandemic: A Discussion on the spatial centralisation</i>	Dept. of Geography, Sudhiranjan Lahiri College	19 July, 2020



## Annual Report 2020-2021

		<i>with special reference to West Bengal'</i>		
	Invited lecture	State-level Webinar on ' <i>Is Pandemic a Catastrophic form of Homeostatisis'</i>	Dept. of Geography, Nabadwip Vidyasagar College	26 July, 2020
	Invited lecture	International Conference on 'Geography as a Discipline: Opportunities and Challenges'	Dept. of Geography, Dewan Abdul Gani College	26 September, 2020

### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher/RS	Title of the Paper	Name of the Conference	Place	Duration
Mr. Mansa Dey	Estimation of aboveground biomass of a coastal wetland of Purba Medinipur, India through NDVI-based spatial modelling using fine resolution multispectral dataset	40 <sup>th</sup> INCA International Congress	Kolkata	10-12 February, 2021

### 6. Major Achievements of the Department during the year:

#### D. Any other Major Achievements:

##### **Prof. Lakshmi Sivaramakrishnan**

- External BoS and Research Committee member of University of Calcutta, The University of Burdwan, Diamond Harbour Women's' University, Vidyasagar University, Bankura University, West Bengal State University, Aliah University and North Eastern Hill University
- Editor, *The Geographical Review of India*,
- Member of the Editorial Board, *Regional Science: Policy and Practice*

##### **Dr. Debajit Datta**

- Board member and 'Regional Contact for South Asia' of the Young Geographer Working Group of Asian Geographical Association
- Associate Editor of *Ecological Processes* (Springer, IF: 2.849)
- Editorial Board Member of *Sustainable Marine Structures* (Nan Yang Academy of Sciences)

### 7. Extension Activities of the Department during the year

#### B. Linkages with other institutes/ industries for internship / on-job training/ project work etc.

##### **Dr. Debajit Datta**

- Supervised one Internship project of PG student of M.Sc. in Geoinformatics from Symbiosis Institute of Geoinformatics, Pune

##### **Dr. Arijit Majumder**

- Supervised three Internship projects of PG students of M.Sc. in Geoinformatics from Symbiosis Institute of Geoinformatics, Pune

### C. Activities for the Society

##### **Dr. Debajit Datta**

- Life member of the International Society of Tropical Foresters

## Annual Report 2020-2021

- Life member of the IGU Commission of 'Landscape Analysis and Landscape Planning'
- Member of the Association of American Geographers, USA
- Member of the International Association for Landscape Ecology
- Life member of the Geographical Society of India, Kolkata
- Life member of the Indian Institute of Geographers, Pune

### 8. Students Progression during the year

#### A. Progression to Higher Studies

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
01	B.Sc. (JU)	M.Sc.	Brandenburg Technical University, Germany
03	M.Sc. (JU)	B.Ed.	Jadavpur University
14	B.Sc. (JU)	M.Sc.	Jadavpur University
05	M.Sc. (JU)	B.Ed.	The West Bengal University of Teachers' Training, Education Planning and Administration
02	M.Sc. (JU)	B.Ed.	Calcutta University
01	M.Sc. (JU)	B.Ed.	Ramkrishna Mission Sikshamandira, Belur
03	M.Sc. (JU)	Ph.D.	Jadavpur University

#### B. Qualifying in State/ National/ International Level Examinations

Name of the Examination	No. of students selected/ qualified
NET	10
Any Other (Corporate Job)	2

## GEOLOGICAL SCIENCES

Phone:033-2457-2268/2719

H.O.D : Prof. Sanjoy Sanyal

Prof. Sisir Kanti Mondal (since 6.11.2020)

Email: hod.geology@jadavpuruniversity.in

### 1. Vision and Mission of the Department:

#### A. Vision:

The academic activities in the Department of Geological Sciences at Jadavpur University aim to quantitatively integrate and analyze the dynamic nature of the Earth System, with an objective to create, disseminate and apply the knowledge in developing skilled human resources, who would be able to meet the critical challenges related to natural resources and environmental issues for a better and sustainable world. The Department also envisions its academic programmes to ignite curiosity-driven fundamental as well as applied research, leading to impactful discoveries and innovation in the Geological Sciences at the international platform. Its dynamic curricula must endeavor to continuously

## Annual Report 2020-2021

update the teaching materials/methods with research-based new knowledge in earth sciences. Finally, the Department of Geological Sciences, since its inception way back in 1956 always dreams of interactive teaching and learning processes in the framework of global knowledge development in natural sciences.

### B. Mission:

The Department of Geological Sciences at Jadavpur University works to champion the following missions.

- To create and disseminate fundamental knowledge about the Earth system and its evolutionary processes
- To provide quality education and equip the students with strong foundation to handle challenges of the ever-advancing technologies in the field of geosciences.
- To apply the basic science knowledge and new methods/tools in exploring the Earth resources and Environment – their past, present and future.
- To maintain state-of-the-art research and outreach facilities in phase with the premier institutions and sustain the teaching and research quality in earth sciences at par with the international standard.
- To develop an industry-academia partnership in order to meet immediate societal problems, such as energy, water, mitigation of risks posed by natural hazards as well as impact of human activities on climate systems and environments.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Bachelor of Science with Geology Honours (CBCS)	Three	2020-2021	127
Master of Science in Applied Geology (CBCS)	Two	2020-2021	73

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
10	02	04	16

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

<b>Dr. Anupam Ghosh</b>	Micropaleontology
<b>Dr. Babar Ali Shah</b>	Sedimentology, Hydrogeology
<b>Prof. Dipak C.Pal</b>	Ore Geology, Geochemistry
<b>Prof. Nibir Mandal</b>	Structural Geology, Geodynamics
<b>Prof. Pulak Sengupta</b>	Metamorphic Petrology, Geochemistry
<b>Dr. Sadhana Mahato Chatterjee</b>	Metamorphic Petrology, Structural Geology
<b>Prof. Sanjoy Sanyal</b>	Metamorphic Petrology, Crustal Evolution
<b>Prof. Sisir Kanti Mondal</b>	Ultramafic-Mafic Rocks and Ore Deposits, Geochemistry of Platinum-Group Elements (PGE)
<b>Dr. Soumik Mukhopadhyay</b>	Sedimentology, Sequence Stratigraphy
<b>Prof. Subir Mukherjee</b>	Ore Geology, Micropaleontology
<b>Prof. Subir Sarkar</b>	Sedimentology, Stratigraphy
<b>Prof. Subrata Karmakar</b>	Petrology, Geochemistry, Precambrian Geology

## Annual Report 2020-2021

<b>Dr. Sunipa Mondal</b>	Sedimentology
<b>Prof. Supriya Mondal</b>	Geophysics
<b>Dr. Susanta Chaudhuri</b>	Hydrogeology and Fluvial Hydraulics
<b>Prof. Susanta Kumar Samanta</b>	Structural Geology, Engineering Geology

### B. Major Research Projects:

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
Petromineralogical, sedimentological, and geochemical studies of quartz pebble conglomerate and associated rocks in parts of Birtola-Bagiyabahal area, Sundergarh district, Odisha, eastern India	Individual	PI: <b>Prof. Dipak C. Pal</b> Co-PI: <b>Dr. Soumik Mukhopadhyay</b>	DAE, BRNS	2018 - 2021
Physical behaviour of natural silicates and oxides, and its implications in environmental studies: a computational approach	Individual	PI: <b>Prof. Nibir Mandal</b>	DAE, BRNS	2018 - 2021
Structural and petrological evolution across South Delhi Fold Belt: the geodynamic evolution of the Precambrian terrane of northwestern India	Individual	PI: <b>Dr. Sadhana M. Chatterjee</b>	CSIR	2019 - 2022
Petrologic, Os isotopic and Platinum-Group Element (PGE) geochemical studies of the Archean komatiites from the Singhbhum Craton (eastern India): Implications for chemical differentiation of the Earth and prospects for Ni-Cu-(PGE) sulfide mineralization	Individual	PI: <b>Prof. Sisir Kanti Mondal</b> (JU, India) and <b>Prof. Laurie Reisberg</b> (CNRS-CRPG & University of Lorraine, France)	Indo-French Centre for the Promotion of Advanced Research (IFCPAR/CEFIPRA)	2019 - 2022
Basin Evolutionary History and Microbial Mat Proliferation versus Uranium Mineralization in the Badami Group, Karnataka	Individual	PI: <b>Prof. Subir Sarkar</b> Co-PI: <b>Dr. Soumik Mukhopadhyay</b>	DAE, BRNS	2018 - 2021
Petrological, Geochemical and Microstructural Studies of the hostrocks of the U-Cu-Fe Mineralized zones along the Rakha-Kulamara transact of the Singhbhum Shear Zone	Individual	PI: <b>Prof. Subrata Karmakar</b> Co-PI: <b>Prof. Pulak Sengupta</b>	DAE, BRNS	2019 - 2022
Systematic study of molluscs and other benthic faunal diversity and their palaeoecological,	Individual	Co-PI: <b>Dr. Sunipa Mandal</b>	DST-SERB (CORE)	2019 - 2022

## Annual Report 2020-2021

palaeobiogeographical distribution during Jurassic-Cretaceous transition in Kutch, Western India				
--	--	--	--	--

### C. Doctoral Research Activities

Number of students awarded Ph.D. during the year	Number of Ph.D. students registered in the Department
7	8

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

1. Baidya, A.S., Pal, D.C., 2020. Geochemical evolution and timing of uranium mineralization in the Khetri Copper Belt, western India. *Ore Geology Reviews*, 103794.
2. Baidya, A.S., Sen, A., Pal, D.C., Upadhyay, D., 2020. Ore-forming processes in the Khetri Copper Belt, western India: constraints from trace element chemistry of pyrite and C-O isotope composition of carbonates. *Mineralium Deposita*, 56, 957–974.
3. Banerjee, R., Mondal, S.K., 2020. Bulk-rock major and trace element geochemistry of the Deccan basalts from the KBH-7 borehole, Koyna Seismic Zone (Western Ghats, India): Assimilation and fractional crystallization, nature of crustal contamination and sulfide saturation of magma. *Lithos*, available online 2 November 2020, 105864.
4. Barbieri, G., Rossi, V., Ghosh, A., Vaiani, S.C., 2021. Conservation Paleobiology as a Tool to Define Reference Conditions in Naturally Stressed Transitional Settings: Micropaleontological Insights from the Holocene of the Po Coastal Plain (Italy). *Water*, 12: 3420, 1-21.
5. Bhattacharjee, C., Mondal, S.K., 2021. Major and trace element geochemistry of Fe-Ti oxide and sulfide minerals in the Archean Mayurbhanj mafic igneous complex, Singhbhum Craton (India): Thermometry and oxygen fugacity of re-equilibration, and implications for ore mineralization. *Ore Geology Reviews*, 131, 104005, available online 22 January, 2021.
6. Buragohain, D. Ghosh, A., 2021. Seasonal distribution trends of benthic foraminiferal assemblages from the Saurashtra coast, western India. *Journal of the Geological Society of India*, 97, 61-69.
7. Chatterjee, S., Basavaiah, N., Mondal, S., Gain, D., 2021. Rock magnetic signatures of the Dalma Formation in the Singhbhum Mobile Belt, Eastern India. *Journal of the Geological Society of India*, 97(6), 635-642.
8. Chatterjee, S.M., Sarkar, A.K., Roy, A., Manna, A., 2020. Mid-Neoproterozoic tectonics of northwestern India: Evidence of stitching pluton along 810 Ma Phulad Shear Zone. *Tectonics*, 39, 1-23.
9. Choudhuri, A., Schieber, J., Sarkar, S., Bickford, M.E., Basu, A., 2020. The “Lower Kaimur Porcellanite” (Vindhyan Supergroup) is of Sedimentary Origin and not Tuff. *Journal Geological Society of India*, 95, 17-24.
10. Choudhuri, A., Banerjee, S., Sarkar, S., 2020. A review of biotic signatures within the Precambrian Vindhyan Supergroup: Implications on evolution on microbial and metazoan life on Earth. *Journal of Mineralogical and Petrological Sciences*, 115, 162–174.
11. Chowdhury, S., Pal, D.C., Papinue, D., Lentz, D.R., 2020. Major and trace element and multiple sulfur isotope composition of sulfides from the Paleoproterozoic Surda copper deposit, Singhbhum Shear Zone, India: implications for the mineralization process. *Ore Geology Reviews*, 103396.
12. Das, E., Karmakar, S., Chatterjee, S., Karmakar, S., Sengupta, P., 2020. First comprehensive characterization of osunilite from India (Eastern Ghats Province): Physicochemical characteristics, stability of the mineral and its breakdown products. *Lithos*, 352-353, 105315.
13. Das, P.K., Mondal, S.K., Mandal, N., 2021. First principles prediction of exceptional mechanical and electronic behaviour of Titanite (CaTiSiO<sub>5</sub>). *Materialia*, 15, 100964.
14. Das, V.K., Roy, S., Burman, K., Chaudhuri, S., Debnath, K., 2020. Near bank turbulence of a river bend with self-similar morphological structures. *Catena*, 191, 104-120.

## Annual Report 2020-2021

15. Das, V.K., Roy, S., Burman, K., Chaudhuri, S., Debnath, K., 2020. Cohesive river bank erosion mechanism under wave-current interaction: A flume study. *Journal of Earth System Science*, 129 (1), 1-20.
16. Das, V.K., Chaudhuri, S., Burman, K., Roy, S., Debnath, K., 2020. Pier scours in fine-grained non-cohesive sediment and downstream siltation, an experimental approach. *Physical Geography*, doi.org/10.1080/02723646.2020.1801372).
17. Dasgupta, R., Mandal, N., Lee, C., 2021. Controls of subducting slab dip and age on the extensional versus compressional deformation in the overriding plate. *Tectonophysics*, 801, 228716.
18. Dasgupta, R., Sen, J., Mandal, N., 2021. Bending curvatures of subducting plates: old versus young slabs. *Geophysical Journal International*, 225(3), 1963-1981.
19. Datta, P., Mondal, S.K., 2020. Compositional variations, thermometry and possible parental magmas of Archean chromites from the Sargur schist belt, Western Dharwar Craton (Southern India). *Lithos*, available online 12 November, 2020, 105867.
20. Ghosh, D., Maiti, G., Mandal, N., 2020. Slab-parallel advection versus Rayleigh-Taylor instabilities in melt-rich layers in subduction zones: A criticality analysis. *Physics of the Earth and Planetary Interiors*, 307, 106560.
21. Ghosh, D., Maiti, G., Mandal, N., Baruah, A., 2020. Cold plumes initiated by Rayleigh-Taylor instabilities in subduction zones, and their characteristic volcanic distributions: the role of slab dip. *Journal of Geophysical Research: Solid Earth*, 125(8), e2020JB019814.
22. González Jiménez, J.M., Mondal, S.K., Ghosh, B., Griffin, W. L., O' Reilly, S.Y., 2020. In situ Re-Os isotope systematic of chromites and host lherzolites of the Andaman ophiolite, India. *Minerals*, Feature Paper in Issue 8, Vol. 10. <https://www.mdpi.com/2075-163X/10/8/686>.
23. González-Jiménez, J.M., Aulbach, S., Smit, K.V., Timmerman, S., Giuliani, A., Mondal, S.K., 2021. Origin and evolution of continental mantle lithosphere and its resource endowment: Preface. *Lithos*, 2021, 384-385, 105965.
24. Jacob, B.J., Misra, S., Parameswaran, V., Mandal, N., 2020. Control of planar fabrics on the development of tensile damage zones under high-speed deformation: An experimental study with granite and gneiss. *Journal of Structural Geology*, 140, 104148.
25. Karmakar, S., Mukherjee, S., Dutta, U., 2020. Origin of corundum within anorthite megacrysts from anorthositic amphibolites, Granulite Terrane, Southern India. *American Mineralogist*, 105, 1161-1174.
26. Kaushik, T., Ghosh, A., Thirumalai, M., Das, I., 2021. *Srinivasania sundarbanensis* gen. et sp. Nov: A new agglutinated benthic foraminifer from the world's largest mangrove ecoregion, the Sunderbans, India. *Journal of Foraminiferal Research*, 51(2), 81-91.
27. Lan, Z., Zhang, S., Li, X-H., Pandey, S.K., Sharma, M., Shukla, Y., Ahmad, S., Sarkar, S., Zhai, M., 2020. Towards resolving the 'jigsaw puzzle' and age-fossil inconsistency within East Gondwana. *Precambrian Research*, 345, 105775.
28. Maiti, G., Mandal, N., 2021. Early Miocene exhumation of high-pressure rocks in the Himalaya: A response to reduced India-Asia convergence velocity. *Frontiers in Earth Science*, 9, 66.
29. Maiti, G., Mandal, N., Misra, S., 2020. Insights into the dynamics of an orogenic wedge from lubrication theory: Implications for the Himalayan tectonics. *Tectonophysics*, 776, 228335.
30. Maity, R., Venkateshwarlu, M., Mondal, S., Kapawar, M. R., Gain, D., Paul, P., 2020. Magnetic and microscopic characterization of anthropogenically produced magnetic particles: a proxy for environmental pollution. *International Journal of Environmental Science and Technology*, 10, 1-16.
31. Mandal, S., Banerjee, S., Sarkar, S., Mondal, I., Roy Choudhury, T., 2020. Origin and sequence stratigraphic implications of high-alumina glauconite within the Lower Quartzite, Vindhyan Supergroup. *Marine and Petroleum Geology*, 112.
32. Palmajumder, M., Chaudhuri, S., Das, V.K., Das, A., Nag, S.K., 2020. Hydrogeochemistry and Overall Appraisal of Groundwater Status of Taldangra Block, Bankura District, West Bengal, India. *Asian Journal of Water, Environment and Pollution*, 17/4, 37-46 (<https://doi.org/10.3233/AJW200049>).

## Annual Report 2020-2021

33. Pandey, M., Azamathulla, H.M., Chaudhuri, S., Pu, J.H., Pourshahbaz, H., 2020.Reduction of time-dependent scour around piers using collars. *Ocean Engineering*, 213, 107692 (<https://doi.org/10.1016/j.oceaneng.2020.107692>).
34. Roy, A., Roy, N., Saha, P., Mandal, N., 2021. Factors determining shear-parallel versus low-angle shear band localization in shear deformations: laboratory experiments and numerical simulations. *Journal of Geophysical Research: Solid Earth*, e2021JB022578.
35. Roy, P., Mandal, S., 2020. Behavioural Ecology, Biogeography and Evolution of *Telescopiumtelescopium* (Linnaeus, 1758) from Chandipur-on-Sea, Odisha, India. Research & Reviews. *Journal of Ecology*, 8(3), 1–7.
36. Sarkar, S., Banerjee, S., Chakraborty, P.P., 2020. Microbial Mat Structures and role of microbes in Precambrian siliciclastic sedimentation. *Episodes*, 43(1), 164-174.
37. Talukdar, M., Mukhopadhyay, D., Sanyal, S., Sengupta, P., 2020. *Early Palaeoproterozoic structural reconstitution of a suite of rocks from the Mahadevi Layered Complex (MLC), Tamil Nadu, India. Geological Journal*, 55(5), 3615-3642.

### E. Research Articles Published in Edited Volumes during the year:

1. Mondal, S., Chatterjee, S., Gain, D., 2021. Mineralogy and Morphological Characterization of Technogenic Magnetic Particles (TMP) from Industrial Dust: Insights into Environmental Implications. In: Shit, P.K., Adhikary, P.P., Sengupta, D. (eds.) Spatial Modeling and Assessment of Environmental Contaminants. Environmental Challenges and Solutions.Springer, Ch. 26, pp. 515-529.

### F. Research Articles Published in Conference Proceedings during the year

1. Chaudhuri, S., Das, V.K., Debnath, K., Hansda, S., 2021.Embankment Breaching at Indian Sundarban - an assessment on Altered Soil Index Properties and Fluvial Flow Parameters. International Conference on Recent Advances in Civil Engineering for Sustainable Development (RACESD- 2021). Department of Civil Engineering, Maulana Azad National Institute of Technology, Bhopal. pp. 88.
2. Das, E., Pal, D.C., De, S., 2020. Trace element composition of sulfides from the Kayad Zn-Pb deposit, Ajmer, Western India: Implications for ore mineralization. AGU Fall meeting 2020. Abstract # V007-V008.
3. Maiti, G., Mandal, N., 2020. Cooking of high-pressure rocks in the subduction zones: An insight from lubrication dynamics. AGU Fall Meeting Abstracts. pp. T019-04.
4. Palmjunder, M., Chaudhuri, S. Das, V.K., 2020. Hydrogeological Status and Assessment of Groundwater Quality of Indpur Block, Bankura District, West Bengal, India - the Present Scenario. 4<sup>th</sup> international Conference(online) on Mother Earth: Nurture and Nature, to have a Better Future. Department of Environmental Sciences, The University of Burdwan, West Bengal, India. pp. 83.
5. Roy, A., Maiti, G., Sen, J., Mandal, N., 2020. Analogue modelling of the gravity-induced crustal flow pattern in India-Asia continental collisional tectonics: a viscous rheological approach. 36<sup>th</sup> International Geological Congress, 2020.
6. Roy, A., Maiti, G., Sen, J., Mandal, N., 2020. Tectonic transitions in the Tibetan plateau during India-Asia collision: Findings from scaled laboratory models. AGU 2020.
7. Roy, A., Roy, N., Saha, P., Mandal, N., 2020.Development of C-shear bands in brittle-ductile shear zones: Insights from analogue and numerical models. EGU General Assembly Conference Abstracts.pp. 960.
8. Sen, J., Sarkar, S., Mandal, N., 2020. Axial Topography of Mid-ocean Ridge Systems: the Role of Underlying Melt Dynamics. AGU Fall Meeting Abstracts. pp. T026-0017.

### G. Research Collaboration with other Departments/Institutes/Industries

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Dr. Anupam Ghosh</b>	Prof. Ritsuo Nomura	Shimane University, Japan	Research Project	Since 2019

**Annual Report 2020-2021**

	Prof. Akira Tsujimoto	Shimane University, Japan	Research Project	Since 2019
	Prof. Helena Alexanderson	Lund University, Sweden	Research Project	Since 2015
	Prof. Stefano C Vainia	Bologna University, Italy	Research Project	Since 2010
	Dr. Rahul Mohan	National Centre for Polar and Ocean Research	Research Project	Since 2015
<b>Prof. Dipak C. Pal</b>	Dr. Chris McFarlane	University of New Brunswick	Academic; Analyses and joint publication	Since 2010
	Dr. Louise Corriveau	Geological Survey of Canada, Canada	Academic; Data sharing and joint publication	Since 2019
	Dr. David Selby	Durham University UK	Academic; Analyses and joint publication	Since 2019
	Dr. Dewashish Upadhyay	IIT, Kharagpur	Academic; Analyses and joint publication	Since 2015
	Dr. Bin Fu	Australian National University, Australia	Academic; Analyses and joint publication	Since 2020
<b>Prof. Nibir Mandal</b>	Prof. Changyeol Lee	YonSei University, South Korea	Collaborative Research, joint publication	Continuing
	Prof. Feranado Marques	Lisbon University, Portugal	Collaborative Research	Continuing
	Prof. Santanu Bose	Presidency University, India	Collaborative Research, joint publication	Continuing
	Prof. Santanu Misra	IIT Kanpur, India	Collaborative Research, joint publication	Continuing
	Dr. Amiya Baruah,	Cotton College, India	Collaborative Research, joint publication	Continuing
<b>Prof. Pulak Sengupta</b>	Dr. Upama Dutta	IIT-ISM, Dhanbad	Academic	Continuing
	Dr. Moumita Talukdar	IEST-Shibpur	Academic	Continuing
	Dr. Soenke Brandt	Friedrich-Alexander University of Erlangen-Nuernberg, Germany	Academic	Continuing
<b>Dr. Sadhana M. Chatterjee</b>	Dr. Upama Dutta	IIT-ISM, Dhanbad	Research Project	Continuing since 2020
<b>Prof. Sisir Kanti Mondal</b>	Prof. Laurie Reisberg	CNRS-CRPG & University of	CEFIPRA Project under Indo-French Bilateral	Since 2019



**Annual Report 2020-2021**

		Lorraine, Nancy, France	Collaboration, Research Scholar Laboratory Training, Exchange, and Joint Publication	
	Dr. Ria Mukherjee	IISER-Bhopal, India	Joint Project, Joint Publications, Research Scholar Training and Exchange	Since 2018
	Prof. Jung-Woo Park	Seoul National University, South Korea	Research collaboration, Analytical Support and Training, Joint Publication	Since 2019
	Dr. M. Lingadebaru	Central University Karnataka, India	Research Collaboration, Joint Publication	Since 2007
	Prof. Rajesh Srivastava	Banaras Hindu University, India	Research collaboration, Joint Publication	Since 2009
	Prof. Mei-Fu Zhou	Hong Kong University, PRC	Research collaboration, Analytical Support, Joint Publication	Since 2004
	Prof. Hong Zhong	Institute of Geochemistry, Chinese Academy of Sciences, Guiyang, PRC	Research collaboration, Analytical Support, Joint Publication	Since 2011
	Dr. M.Satyanarayanan	CSIR-NGRI, Hyderabad, India	Research collaboration, Analytical Support and training, Joint Publication	Since 2010
	Dr. Sarifa Khatun	Presidency University, India	Collaborative Research	Since 2018
	Prof. Shoji Arai	Kanazawa University, Japan	Academic Exchange, Joint Publication	Since 2012
<b>Dr. Soumik Mukhopadhyay</b>	Dr. Pradip Samanta	North Bengal University	Collaborative Research	Since 2010
<b>Prof. Subir Sarkar</b>	Prof. Santanu Banerjee	IIT Bombay	Academic, Joint publication	Since 2000
	Prof. Partha P. Chakraborty	Delhi University	Academic, Joint publication	Since 2000

### Annual Report 2020-2021

	R. Nagendra	Anna University	Academic, Joint publication	Since 2015
	Prof. El Hafid Bouougri	Cadi-Ayyad University, Morocco	Academic	Since 2017
<b>Dr. Susanta Chaudhuri</b>	Prof. Koustuv Debnath	IEST, Shibpur	Research Project & Ph.D. guidance	Since 2015
	Dr. Jaan H. Pu	University of Bradford West Yorkshire, England.	Collaborative Research	Since 2019
	Dr. Krishnendu Barman	Vidyasagar University, Paschim Midnapore, WB. India.	Collaborative Research	Since 2019

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**B. Books/Monographs Edited:**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>González-Jiménez, J.M., Aulbach, S., Smit, K.V., Timmerman, S., Giuliani, A., Mondal, S.K.</b>	Origin and evolution of continental mantle lithosphere and its resource endowment	Lithos, Elsevier	ISSN: 0024-4937	2021
<b>Sarkar, S., Banerjee, S.</b>	A Synthesis of Depositional Sequence of the Proterozoic Vindhyan Supergroup in Son Valley.	Springer	ISSN 2197-9545	2020

**E. Orientation Courses/ Refresher Courses Attended**

Name of the Teacher	Title of the Course	Place	Date
<b>Dr. Susanta Chaudhuri</b>	Refresher Course in Natural and Biosciences	University of Burdwan, WB. India	24 November – 07 December, 2020
<b>Dr. Soumik Mukhopadhyay</b>	Seven-day Short Term Course on Research Methodology	UGC Human Resource Development Centre; University of North Bengal, Siliguri; WB.	26 November – 2 December, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Nibir Mandal</b>	Plenary Lecture on, 'The Himalaya-Tibet Dynamics: a debate'	International Conference CONIAPS XXVI- "Advances in Applied	Manipal University, Jaipur, India	18-20 December, 2020

**Annual Report 2020-2021**

		Physics and Earth Sciences”		
<b>Prof. Pulak Sengupta</b>	Key Note Speaker	National Seminar on Recent Advancements in Geoscience Research in India Department of Geology, Centre of Advanced Studies, University of Delhi, Delhi-110007	Online	About 1 hour
	Invited Talk	"GEOCHRON – an online lecture series" Department of Geology Presidency University	Online	13 September, 2020
	Invited Talk	Earth Sciences grant writing workshop of the MoE-STARS programme. Ministry of Education, Govt of India	Online	10 December, 2020
<b>Prof. Subir Sarkar</b>	Invited lecture (Sediment, Biota and Sequence Stratigraphy in the Vindhyan Supergroup, central India: A new outlook)	e-training program entitled "Sedimentary Mapping Techniques in Vindhyan" organized by Regional Training Division, GSI, NR	Lucknow	15 October, 2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
Ishita Das (RS)	Seasonal distribution of benthic foraminifera in marshes and intertidal regions of Bakkhali region, West Bengal	International Conference on Mother Earth	Burdwan University	27-29 August, 2020
Dr. Susanta Chaudhuri	Hydrogeological Status and Assessment of Groundwater Quality of Indpur Block, Bankura District, West Bengal, India – the Present Scenario	4 <sup>th</sup> international Conference (online) on Mother Earth : Nurture and Nature, to have a Better Future	Department of Environmental Sciences, University of Burdwan, West Bengal, India	27- 29 August, 2020
	Embankment Breaching at Indian Sundarban – an Assessment on Altered Soil Index Properties and Fluvial Flow Parameters	International Conference on Recent Advances in Civil Engineering for Sustainable Development (RACESD- 2021),	Department of Civil Engineering, Maulana Azad National Institute of Technology, Bhopal, MP, India.	13-14 February, 2021

## Annual Report 2020-2021

### H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
<b>Dr. Anupam Ghosh</b>	International Conference on Paleoclimate changes	Vellore Institute of Technology	9 -10 July, 2020
	Recent Advances in Geological Research	Fakir Mohan University	5 August, 2020
	Groundwater Security of India	Adamas University	23 March, 2021
<b>Dr. Susanta Chaudhuri</b>	Faculty Development Programme (FDP) titled - 'Recent Modelling Approaches in Water Resources Engineering -2020'	Dept. of Civil Engineering, Osmania University, Hyderabad, Telangana	17 -21 August, 2020.

### 6. Major Achievements of the Department during the year

#### C. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
<b>Dipak C. Pal</b>	Fellow of the West Bengal Academy of Science and Technology	West Bengal Academy of Science and Technology	Kolkata

#### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
<b>Arnab Roy</b>	HPC-Europa3 Transnational Access programme	Department of Earth Sciences, Durham University	-
<b>Arnab Roy</b>	Social Division Manager	EGU Tectonic Division	-
<b>Giridas Maiti</b>	Postdoctoral fellowship	KIT University, Germany	-

#### D. Any Other Major Achievements:

##### **Dr. Anupam Ghosh**

Selected as Member of Education Week Sub-committee for International Petroleum Technology Conference (IPTC 2021), Kuala Lumpur scheduled 23-25 March, 2021

##### **Prof. Dipak C. Pal**

Associate Editor (Economic Geology Section), Frontiers in Earth Sciences

##### **Prof. Nibir Mandal**

Member	Inter-academy panel (INSPIRE Programme), DST, India
Convener	Sectional Committee (Earth Science), WAST (2017-continuing)
Member	Sectional Committee, WAST (2014- continuing)
Visitor's nominee	Allahabad University (2014 - continuing)
Core Member	Programme Advisory Committee (SERB), (2015- continuing)
Member	The Council, Indian National Science Academy, New Delhi (2015-continuing)

## Annual Report 2020-2021

Chairman	INSPIRE Faculty Programme, Earth & Planetary Sciences (2016-)
Chairman	Start-Up Research Grant (Young Scientist), SERB (2017-continuing)
Convener	Selection of Summer Fellowship, Earth Sciences, Indian Academy of Sciences (2018- continuing)
Member	Research Advisory Committee, Earth Sciences, CSIR-HRDG, New Delhi (2018-)
Chairman(Subject)	Committee in Basic Sciences, SPARC Programme, MHRD, New Delhi (2018- continuing)
Chairman	Expert Committee, Earth Sciences for SRG and NPDF programmes, SERB- India (2018- continuing)
Member	Faculty Selection Committee in Earth Sciences, PSC, Govt. of West Bengal, Kolkata (2019)
Member	Faculty Selection Committee in Earth Sciences, IIT Roorkee (2020-continuing)
Member	Selection Committee for Institute Awards, IIT Mumbai (2020-continuing)

### **Prof. Pulak Sengupta**

Associate Editor, Journal of Earth System Sciences, Springer-Verlag  
Member, Sectional Committee, INSA  
Member, Sectional Committee, IASc  
Member, Earth and Atmospheric Science, PAC, DST  
Member, Earth and Environmental Sciences, DST-FIST  
Member, Inter Academy Science Panel  
External Expert, SAIF program, UGC  
External Expert, CAS program, Department of Geology, BHU

### **Prof. Sisir K. Mondal**

Editorial Board, Journal of Geological Society of India (Springer) (2008 - continuing)  
Associate Editor, Ore Geology Reviews (Elsevier) (2018 - continuing )  
Associate Editor, Journal of Asian Earth Sciences (Elsevier) (2000 - continuing )  
Member, Nominations Committee, Geochemical Society US (2018-2020)  
Rector's Nominee, Pondicherry University CAS Faculty Promotion (2018 - continuing )  
DG-CSIR Nominee, CSIR-IIT-Bhubaneswar Scientist Selection (2019 - continuing )

### **Prof. Subir Sarkar**

Editorial board of Journal of Palaeogeography, Springer-Verlag and The Journal of the Indian Associations of Sedimentologists  
International Brand Ambassador, SEPM  
Member, International association of Sedimentologist  
Joint Secretary, Indian Association of Sedimentologist

## **7. Extension Activities of the Department during the year:**

### **A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

- Prof. Dipak C. Pal acts as visiting faculty at the Department of Geology, North Bengal University
- Prof. Sanjoy Sanyal act as a Visiting Faculty in Asutosh College Post Graduate Course in Metamorphic Petrology
- Prof. Sanjoy Sanyal supervised 2 PG students of Asutosh College for their M. Sc Dissertation.
- Prof. Subrata Karmakar acted as external expert member - Ph.D. Research Committee, Dept. of Geology, University of Calcutta; He also acted as an external member of UG Board of Studies in

## Annual Report 2020-2021

Geology, University of Calcutta, external Member in UG & PG Board of Studies, Kazi Nazrul University, external Member in UG Board of Studies in Geology, University of Burdwan

- Dr. Sunipa Mandal acts as visiting faculty, examiner, paper setter, moderator in Asutosh College, Calcutta University and Kazi Najrul University.

### B. Activities for the Society:

- Dr. Anupam Ghosh organized World Environment Day 2020, 7 June, 2020 (AAPG-SEG-SPG India -JU Student Chapter Activity)
- Dr. Anupam Ghosh organized Geogony 2020 12-13 September, 2020 (AAPG-SEG-SPG India-JU Student Chapter Activity)

### 8. Students Progression during the year:

#### A. Progression to Higher Studies

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
31	BSc. in Geology	MSc. in Applied Geology	Jadavpur University
17	BSc. in Geology	MSc. In Geology (13) MSc.Tech in Geology (4)	IIT-Kharagpur (3), IIT-Bombay (4), ISM Dhanbad (4), IIT-Roorkee (4)IIT-Bhubaneshwar (2)
5	MSc. in Applied Geology	Ph.D	Jadavpur University

#### B. Qualifying in State/ National/ International Level Examinations

Name of the Examination	No. of students selected/ qualified
NET	5
GATE	10
JOINT ADMISSION TEST FOR MSC (JAM)	25

## Annual Report 2020-2021

### INSTRUMENTATION SCIENCE

Phone: 033-2457-2423

H.O.D : Dr. Anup Kumar Ghosh

E-mail: hod.inst.sc@jadavpuruniversity.in

#### 2. Academic Activities:

##### A. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
MSc. Instrumentation Science	2 Years	1 <sup>st</sup> year	14
		2 <sup>nd</sup> year ...	14

#### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
	1	1	2

#### 4. Research Activities:

##### A. Areas of Research Activities: (Broad Areas)

Material Synthesis, Sensor developments, Solar Cell Modeling, Bio- Sensor synthesis, Thin film Sensors, Plasma Studies.

##### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Advanced asymmetric supercapacitor with NiCo <sub>2</sub> O <sub>4</sub> nanoparticales and nanowires electrodes: A comparative morphological hierarchy	Individual	Dr. Sachindranath Das		
Temperature and frequency dependent dielectric response of C <sub>3</sub> H <sub>7</sub> NH <sub>3</sub> PbI <sub>3</sub>	Individual	Dr. Sachindranath Das		
Enhanced electrochemical properties of Co <sub>3</sub> O <sub>4</sub> with morphological hierarchy for energy storage application: A comparative study with different electrolytes	Individual	Dr. Sachindranath Das		

### Annual Report 2020-2021

Dielectric relaxation and charge conduction mechanism in mechanochemically synthesized methylammonium bismuth iodide.	Individual	<b>Dr. Sachindranath Das</b>		
Rotary-Jet spin assisted fabrication of MnO <sub>2</sub> microfiber for supercapacitor electrode application.	Individual	<b>Dr. Sachindranath Das</b>		
Performance of asymmetric supercapacitor fabricated with perovskite-type Sr <sup>2+</sup> -incorporated LaMnO <sub>3</sub> (La <sub>0.7</sub> Sr <sub>0.3</sub> MnO <sub>3</sub> ) nanostructures in neutral 1M Na <sub>2</sub> SO <sub>4</sub> aqueous electrolyte	Individual	<b>Dr. Sachindranath Das</b>		
Influence of electrochemical active surface area on the oxygen evolution reaction and energy storage performance of MnO <sub>2</sub> -multiwalled carbon nanotube composite	Individual	<b>Dr. Sachindranath Das</b>		
Synthesis and characterization of CuO-NiO nanocomposites for Electrochemical Supercapacitors.	Individual	<b>Dr. Sachindranath Das</b>		

#### C. Doctoral Research Activities

<b>Number of students awarded Ph.D during the year</b>	<b>Number of Ph.D students registered in the Department</b>
<b>4</b>	<b>3</b>

#### H. Research Collaboration with other Departments/Institutes/Industries

<b>Name of the Teacher(s)</b>	<b>Name of the Collaborator(s)</b>	<b>Collaborating Dept./Inst./Indus.</b>	<b>Nature of Collaboration</b>	<b>Duration</b>
<b>Dr. Sachindranath Das</b>	<b>Prof. Swapan Kumar Pradhan</b>	Materials Science Division Department of Physics The University of Burdwan	Research & Publication	Entire the period
<b>Dr. Sachindranath Das</b>	<b>Prof. Mahasweta Nandi</b>	Integrated Science Education and Research Centre Visva-Bharati University	Research & Publication	Entire the period



## Annual Report 2020-2021

### LIFE SCIENCE & BIO-TECHNOLOGY

Phone: 033-2457-2189/2466

H.O.D: Prof. Biswadip Das

Prof. Ratan Gachhui (since 27.7.2020)

E-mail: hodlifescbiotech@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

##### A. Vision:

Vast scientific advancement in global knowledge base has mounted during the last two decades in the field of Life Sciences, Biotechnology and Biomedical Sciences. Accumulation of the huge data have posed a daunting challenge to the existing global scientific community to generate highly qualified, and trained human resources to interpret and utilize these gigantic amount of data in a meaningful manner. India being one of the largest economically advanced countries faces this challenge even more strongly as the promise of the development of life sciences in academia and the growth of biotechnological industry is huge. Therefore, it is necessary to generate a highly qualified cadre of future scientists to mitigate this demand. Being a reputed department of Life Science and Biotechnology of a celebrated University in the country, we acknowledge this critical concern.

##### B. Mission:

Keeping this demand in mind, the Department of Life science and Biotechnology is committed to produce good quality students of high caliber to cater this need. Recently, the department has upgraded the existing facilities of teaching and research in the ongoing areas and strives to develop new avenues in the frontier areas of modern biology to explore newer possibilities. We are dedicated to constantly improve the quality of both of our teaching and research activities that will drastically transform the current paradigm of existing academic activities.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M.Sc.(Biotechnology)	Two years	1 <sup>st</sup> year	29
		2 <sup>nd</sup> year ...	24
P.hd (Biotechnology)			48

#### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
3	0	2	5

#### 4. Research Activities:

##### A. Areas of Research Activities:

- Nanobiotechnology, Cell Biology (PK)
- Microbiology and Biochemistry (RG)
- Genetics, Molecular Biology and RNA Biology (BD)
- Bioinformatics and Microbial Biotechnology (PKD)
- Cardiac Biology (ASG)

**Annual Report 2020-2021**

**B. Major Research Projects:**

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
Fabrication of exosome advance biomaterial for biomedical applications	departmental	<b>Parimal Karmakar</b>	RUSA , Jadavpur University	2019-2021
Development of polyherbal based functional biopolymer hydrogel for delivery of novel healing agents in excision and burn wound	Individual	<b>Parimal Karmakar</b>	DBT, Twinning	
Development of functional biopolymer-based Matirces for delivery of healing agents in chronic wound	Individual (File no: ST/P/S & T/2G-13/2017)	<b>Parimal Karmakar</b>	DST, WB	2018-2021
Functional Role of Nrd1-Sen1-Nab3 (NNS) trimeric protein complex in the Nuclear mRNA surveillance in <i>Saccharomyces cerevisiae</i>	BT/PR27917/B RB/10 /1673/2018	<b>Biswadip Das</b>	DBT, Govt. of India	2019-2022
Endophytic Bacterial Community of Rice Root from Saline Zone of Sundarban, West Bengal: Development of Microbial Biofertilizers using Indigenous Microorganisms (IMO's)- based Technology for Higher Rice Production	Individual	<b>Paltu Kumar Dhal</b>	SERB-DST	Three years (2019-2022)
Agricultural Cultivation for Scientific Adaptation of Santalum album L. plant.	Individual	<b>Paltu Kumar Dhal (Co-PI)</b>	WB-DST	Three years (2019-2022)
Indigenous Microorganisms (IMO's)- based Technology for Bioremediation of	Individual	<b>Paltu Kumar Dhal</b>	UNESCO	Two year (2020-2021)

## Annual Report 2020-2021

Phosphogypsum generated from Phosphoric Acid Plants in India				
Identification of a novel function of cardiogenic transcription factor, TBX20 as an ER-stress responsive gene in adult cardiac protection in vivo	Individual	<b>Arunima Sengupta (PI)</b>	SERB-DST	Three Years (Dec 2020-Dec 2023)

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication):

#### 1. Parimal Karmakar:

1. Abhinandan Barua, Arunodaya Gautam, Soumalya Mukherjee, Kunal Pal, Parimal Karmakar, Mitali Ray, Sajal Ray, Expanded polystyrene microplastic is more cytotoxic to seastar coelomocytes than its nonexpanded counterpart: A comparative analysis, *Journal of Hazardous Materials Letters*, Volume 2, 2021, 100031. IF: 10.5.
2. Shubham Roy, Souravi Bardhan, Dhananjay Mondal, Shita Saha, Jhilik Roy, Solanky Da, Dipak Kr. Chanda, Parimal Karmakar, Sukhen Das, Polymeric Carbon dot/boehmite Nanocomposite Made Portable Sensing Device (Kavach) for Non-invasive and Selective Detection of Cr(VI) in Wastewater and Living Cells, *Sensors and Actuators B Chemical*, Volume 348, 1 December 2021, 130662 DOI:10.1016/j.snb.2021.130662. IF:7.4
3. Mukti Mohammad, Ishita Saha, Kunal Pal, Parimal Karmakar, Prateek Pandya et al, A comparison on the biochemical activities of Fluorescein disodium, Rose Bengal and Rhodamine 101 in the light of DNA binding, antimicrobial and cytotoxic study. *Journal of Biomolecular Structure and Dynamics*. <https://doi.org/10.1080/07391102.2021.1936180> IF 3.5
4. Soumalya Mukherjee, Arunodaya Gautam, Kunal Pal, Parimal Karmakar, Mitali Ray, Sajal Ray; Copper oxide nanoparticle and copper sulfate induced impairment of innate immune parameters in a common Indian sponge ; *Journal of Hazardous Materials Letters*, Volume 2, November 2021, 100036:IF:10.5
5. Non canonical function of nuclear PTEN and its implication on tumorigenesis. DOI: 10.1016/j.dnarep.2021.103197, Sandip Misra, Ginia Ghosh, Sougata Ghosh Chowdhury, Parimal Karmakar; *DNA Repair* 107 (2021) 103197.
6. Nurunnesa Siddiqui, Kunal Pal, Mukti Mohammad, Parimal Karmakar, Md. Maidul Islam and Subrata Mukhopadhyay; Green synthesis of a silver nanoparticle having specific anticancer activity against MDA-MB 468 carcinoma cells; *Advances in Natural Sciences: Nanoscience and Nanotechnology*, 12, 025017, 2021.
7. Effects of copper oxide nanoparticle on gill filtration rate, respiration rate, hemocyte associated immune parameters and oxidative status of an Indian freshwater mussel Abhishek Ray, Arunodaya Gautam, Santanu Das, Kunal Pal, Subhadeep Das, Parimal Karmakar, Mitali Ray, Sajal Ray, *Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology*, Volume 237, November 2020, 108855, IF 2.89
8. Radioprotection of thymine and calf thymus DNA by an azo compound: mechanism of action followed by DPPH radical quenching & ROS depletion in WI 38 lung fibroblast cells Durba

## Annual Report 2020-2021

- Ganguly, Ramesh Chandra Santra, Swagata Mazumdar, Abhijit Saha, Parimal Karmakar, Saurabh Das, Heliyon, Vol. 6, Issue 5, Published online: May 29, 2020, IF
9. Essential oil impregnated luminescent hydroxyapatite: Antibacterial and cytotoxicity studies, Somtirtha Banerjee, Biswajoy Bagchi, Kunal Pal, Suman Bhandary, Arpan Kool, Nur Amin Hoque, Prosenjit Biswas, Pradip Thakur, Kaustuv Das, Parimal Karmakar, Sukhen Das. *Materials Science and Engineering: C*, 2020. IF 5.88
  10. A dual role of cumin-seed extract towards the silver nanoparticle synthesis and stabilisation and its potential for antibacterial and anticancer activities through oxidative damage. Nurunnesa Siddiqui, Kunal Pal, Parimal Karmakar, Md Moidul Islam, Subrata Mukhopadhyay. *Adv. Nat. Sci.: Nanosci. Nanotechnol.* 11 (2020) 025019 (9pp). IF:0.94
  11. "Facile synthesis of antibiotic encapsulated biopolymeric okra mucilage nanoparticles: molecular docking, in vitro stability and functional evaluation" by Masum et al, *Advances in Natural Sciences: Nanoscience and Nanotechnology*, 2020. IF:1.35
  12. E2F5 promotes prostate cancer cell migration and invasion through regulation of TFPI2, MMP-2 and MMP-9. Karmakar D, Maity J, Mondal P, Shyam Chowdhury P, Sikdar N, Karmakar P, Das C, Sengupta S. *Carcinogenesis*. 2020 May 9. pii: bgaa043. doi: 10.1093/carcin/bgaa043. [Epub ahead of print], IF 5.33
  13. The protective role of metformin in autophagic status in peripheral blood mononuclear cells of type 2 diabetic patients. Bhattacharya D, Dutta M, Mukhopadhyay M, Bhattacharyya M, Chowdhury S, Karmakar P. *Cell Biol Int.* 2020 Apr 1. doi: 10.1002/cbin.11355. [Epub ahead of print], IF 1.74
  14. A mechanistic insight into the bioaccessible herbometallic nanodrug as potential dual therapeutic agent. D Bera, K Pal, B Ruidas, D Mondal, S Pal, BK Paul, P Karmakar, S Das, ...*Materials Today Communications*, Vol24, sept 2020, 101099, IF 2.678
  15. 4-Methyl-2, 6-diformylphenol based biocompatible chemosensors for pH: discrimination between normal cells and cancer cells. T Dhawa, A Hazra, A Barma, K Pal, P Karmakar, P Roy *RSC Advances* 10 (26), 15501-15513. IF3.049
  16. Green cardamom mediated phytosynthesis of ZnONPs and validation of its antibacterial and anticancerous potential, S Pal, K Pal, S Mukherjee, D Bera, P Karmakar, S Das., 2020 *Mater. Res. Express* 7 015068 . IF:1.9
  17. Development of two fluorescent chemosensors for selective detection of Zn<sup>2+</sup> and Al<sup>3+</sup> ions in quinoline platform by tuning of substituent in the receptor part: Elucidation of ... P Ghorai, K Pal, P Karmakar, A Saha. *Dalton Transactions*, Issue 15, 2020, IF:4.05
  18. Development of Rhodamine 6G-Based Fluorescent Chemosensors for Al<sup>3+</sup>-Ion Detection: Effect of Ring Strain and Substituent in Enhancing Its Sensing ... J Mandal, P Ghorai, K Pal, T Bhaumik, P Karmakar, A Saha. *ACS Omega* (2020) *ACS Omega* 2020, 5, 1, 145–157. IF2.58.
  19. "Evaluation of wound healing activity of ethanol extract of *Annona reticulata* L. leaf both in vitro and in diabetic mice model. Swagata Mazumdar, Amit K. Ghosh, Manikarna Dinda, Anjan K. Das, Saurabh Das, Kuladip Jana, Parimal Karmakar, DOI: <https://doi.org/10.1016/j.jtcme.2019.12.001>, *Journal of Traditional and Complementary Medicine*, Accepted Date: 3 December 2019. Available online 6 December 2019, IF:0.55.

### 2.Ratan Gachhui

- (1) Anti-virulence activity of polyphenolic fraction isolated from Kombucha against *Vibrio cholerae*; Debanjana Bhattacharya, Ritam Sinha, Priyadarshini Mukherjee, Debaki Ranjan Howlader, Dhruvajyoti Nag, Soumyadev Sarkar, Hemanta Koley, Jeffrey H Withey, Ratan Gachhui *Microb Pathog* 2020 Mar;140:103927. doi: 10.1016/j.micpath.2019.103927. Epub 2019 Dec 14 [IF 3.738]
- (2) Assessment of polycyclic aromatic hydrocarbon contamination in the Sundarbans, the world's largest tidal mangrove forest and indigenous microbial mixed biofilm-based removal of the contaminants; Saranya Balu, Shantanu Bhunia, Ratan Gachhui, Joydeep Mukherjee; *Environ Pollut* 2020 Nov;266(Pt 1):115270. doi: 10.1016/j.envpol.2020.115270. Epub 2020 Aug 6. [IF 8.071]
- (3) Remarkably high Pb<sup>2+</sup> binding capacity of a novel, regenerable bioremediator *Papiliotrema laurentii* RY1: Functional in both alkaline and neutral environments; A Mukherjee, S Sarkar, R Parvin,

## Annual Report 2020-2021

D Bera, U Roy, R Gachhui; Ecotoxicology and environmental safety Volume 195, 1 June 2020, 110439 [IF 4.8]

### 3. Biswadip Das

1. Saha U, Gaine R., Saha P., Das S and **Das B**, (2021) The CTEXT complex plays a crucial role in targeting distinct sets of mRNAs by the nuclear exosome function in *Saccharomyces cerevisiae* **bioRxiv**. doi: <https://doi.org/10.1101/2021.03.29.437469>
2. Chaudhuri A., Das S., Banerjee M. and **Das B**. (2021) Rrp6p/Rrp47p constitutes an independent nuclear turnover system of mature small non-coding RNAs in *Saccharomyces cerevisiae* **bioRxiv**. doi: <https://doi.org/10.1101/2020.12.13.422512> (under revision in *Nucleic Acids Research*.)
3. Singh P, Chaudhuri A, Banerjee M., Marathe N, and **Das B**. (2020) Nrd1p identifies aberrant and natural exosomal target messages during the nuclear mRNA surveillance in *Saccharomyces cerevisiae*. **bioRxiv**. doi: <https://doi.org/10.1101/2020.06.02.129106> (under revision in *Nucleic Acids Research*).
4. Bhattacharjee A, Das S, Das B, and Roy P. (2020) Intercalative DNA binding, protein binding, antibacterial activities and cytotoxicity studies of a mononuclear copper(II) complex, **Inorg. Chim. Acta**, 514, 119961-72. <https://doi.org/10.1016/j.ica.2020.119961> (2020 Impact Factor 2.04).
5. Chaudhuri A, Das S, and **Das B**. (2020) The Role RNA cis-Elements in the intracellular trafficking, transport, and localization of messenger RNAs in *Saccharomyces cerevisiae* **WIRES RNA** e1591, 1-37 <https://doi.org/10.1002/wrna.1591> (2020 Impact Factor 9.95)

### 4. Paltu Kumar Dhal:

1. Pranamita Kunda, Abhishek Mukherjee and **Paltu Kumar Dhal**. (2021). Insights into endophytic bacterial diversity of rice grown across the different agro-ecological regions of West Bengal, India". *World Journal of Microbiology and Biotechnology* (accepted in press, impact factor **3.312**)
2. Indraneel Sengupta and **Paltu Kumar Dhal**. (2021) Impact of elevated Phosphogypsum on soil fertility and its aerobic biotransformation through indigenous microorganisms (IMO's) based technology. *Journal of Environmental Management* 297 (2021) 113195. (<https://doi.org/10.1016/j.jenvman.2021.113195>). (Impact Factor 6.789)
3. Tilak Nayak, Indraneel Sengupta and **Paltu Kumar Dhal**. (2021) A new era of radiation resistance bacteria in bioremediation and production of bioactive compounds with therapeutic potential and other aspects: an in-perspective review. *Journal of Environmental Radioactivity* 237 (2021) 106696 (<https://doi.org/10.1016/j.jenvrad.2021.106696>) (Impact Factor 2.674)
4. Tilak Nayak, Debjit De, Parimal Karmakar, Argha Deb, **Paltu Kumar Dhal**. (2021). Microbial communities of the drinking water with gradient radon concentration are primarily contributed by radon and heavy metal content. *Frontiers of Environmental Science* 9:576400. doi: 10.3389/fenvs.2021.576400 (Impact Factor 4.581)
5. Tilak Nayak, Debjit De, **Paltu Kumar Dhal**. (2021). The differences in SARS-CoV and SARS-CoV-2 specific co-expression network mediated biological process in human gut enterocytes. *Infection, Genetics and Evolution* 3;92:104892. doi: 10.1016/j.meegid.2021.104892 (Impact Factor 3.342)
6. Seal M, Kunda P, **Dhal P.K.** et al. (2021). Phenotypic and Molecular Characterizations of Haemolytic and Penicillin-Resistant *Bacillus cereus* and its Control by Plant Extracts. *Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci.* <https://doi.org/10.1007/s40011-021-01255-w>. (Impact Factor 0.342)
7. Sucharita Ghosh, Tilak Nayak, **Paltu Kumar Dhal**, Tushar Kanti Dangar, Soumendranath Chatterjee. (2021). Characterization of Plant Growth Promoting *Bacillus subtilis* (VBKT5) Isolated from Vermicompost. *Research & Reviews: A Journal of Life Sciences* 11: 1, 2021. 10.37591/RRJoLS.

### 5. Arunima Sengupta:

1. Samanta Jayeeta, Mondal Arunima, Saha Sremoyee, Chakraborty Santanu, **Sengupta Arunima**. (2020). Oleic Acid Protects from Arsenic-Induced Cardiac Hypertrophy via AMPK/FoxO/NFATc3 Pathway. *Cardiovasc Toxicol.* Jun;20(3):261-280.
2. Polley Anisha, Khanam Riffat, **Sengupta Arunima** and Chakraborty S. (2020). Aspirin reduces adult aortic valve interstitial cell mineralization induced by osteogenic media and Wnt signaling manipulation in vitro. *International Journal of Cell Biology*; doi: 10.1155/2020/2045969

## Annual Report 2020-2021

3. Das Shreya, Mondal Arunima, Samanta Jayeeta, Chakraborty Santanu, **Sengupta Arunima**.(2021).Unfolded protein response during cardiovascular disorders: a tilt towards pro-survival and cellular homeostasis.Mol Cell Biochem. doi: 10.1007/s11010-021-04223-0.
4. Saha Pranab Chandra, Bera T, Chatterjee T, Samanta Jayeeta, **Sengupta Arunima**, Bhattacharyya M, Guha Samit. (2021) Supramolecular Dipeptide-Based Near-Infrared Fluorescent Nanotubes for Cellular Mitochondria Targeted Imaging and Early Apoptosis.Bioconj Chem. 21;32(4):833-841.
5. Parna Dutta, **Sengupta Arunima** and Chakraborty Santanu. (2021). Epigenetics: a new warrior against cardiovascular calcification, a forerunner in modern lifestyle diseases. Accepted. Doi: 10.1007/s11356-021-15781-0.

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Parimal Karmakar</b>	Prof. Samir Sil	Department of human Physiology, Tripura University	Scientific	6 years
<b>Parimal Karmakar</b>	Prof. Sukhen Das	Department of Physics, JU	Scientific	3 years
<b>Biswadip Das</b>	Prof. Elizabeth J Tran	Department of Biochemistry, Purdue University, USA	Scientific	5 Years
<b>Biswadip Das</b>	Dr. Sreekanta Goswami	National Institute of Biomedical Genomics, Kalyani	Scientific	3 Years
<b>Biswadip Das</b>	Dr. Siddhartha Roy (Junior)	Indian Institute of Chemical Biology, Kolkata.	Scientific	3 Years
<b>Arunima Sengupta</b>	Dr. Alok Ghosh	Dept of Biochemistry, Calcutta University	Scientific	1 year
<b>Arunima Sengupta</b>	Dr. Santanu Chakraborty	Dept of Life Science, Presidency University	Scientific	4 years
<b>Arunima Sengupta</b>	Prof. Biswajit Mukherjee	Dept of Pharmaceutical Technology, Jadavpur University	Scientific	2 years
<b>Arunima Sengupta</b>	Dr. Samit Guha	Dept of Chemistry, Jadavpur University	Scientific	2 years

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:

#### A. Books/Monographs Published:

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>De D., Karmakar P., Bhattacharya D</b> (2020)..	Stem Cell Aging and Regenerative Medicine. In: Advances in Experimental Medicine and Biology	Springer, New York, NY	<a href="https://doi.org/10.1007/5584_2020_577">https://doi.org/10.1007/5584_2020_577</a>	2020

## Annual Report 2020-2021

### C. Seminar/Workshop/Conference/Symposium Organized:

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration):

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
BIOCOM2021: "Development of different biocompatible materials: approaches for efficient drug delivery".	organized by Centre for Glass and Ceramic, Prof. Jui Chakraborty	Two-Days Webinar On Bioactive Glass, Ceramics & Composites in Healthcare Current Technological Trends	Kolkata	27 and 28 May, 2021

### D. Refresher Courses Organized:

(Name of the Teachers, Title of the Course, if any, Duration, Place):

Title of the Course	Name of the Coordinator(s)	Place	Date
Emerging areas in Life Sciences	Paltu Kumar Dhal and Arunima Sengupta	Department of Life Science and Biotechnology	27January-8 February, 2020

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Ratan Gachhui	Oral (Virtual)	International Web Lecture Series 2020 (Making Sense of Uncertainty: Coping in the Era of Coronavirus)	Dhrubachand Halder College & Raidighi College	(one hour) 30July, 2020
Ratan Gachhui	Oral (Virtual)	World Environment Day	Moulana Azad College	(One Hour) 5June, 2021
Paltu Kumar Dhal	Invitation Lecture	Webinar of one-day Virtual Session on "Role of Microbiome in Environmental Detoxification" organized by Department of Zoology, Jhargram Raj College, Jhargram	Virtual (Jhargram Raj College, Jhargram)	2.5 hours on 25 June, 2021
Paltu Kumar Dhal	Invited participation	ZMT regional alumni conference ZMT Alumni Conference: Data management and collaboration for tackling marine challenges.	Virtual (ZMT, Germany)	16-17 March, 2021
Arunima Sengupta	Invited Lecture	Webinar on "Cardiomyocyte survival and death pathways: A fine balance between development and disease"	JIS Institute of Advanced Studies and Research (JISIARS),	3 September, 2020

**Annual Report 2020-2021**

			JIS University, Kolkata	
--	--	--	-------------------------	--

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
<b>Paltu Kumar Dhal</b>	Exploring the Endophytic Bacterial Communities of Rice Root Cultivated in Saline Zone of Sundarban, India	<b>World Microbe Forum:</b> joint digital between American Society for Microbiology (ASM) and Federation of European Microbiological Societies (FEMS)	Virtual (American Society for Microbiology)	20-24 June, 2021

**6. Major Achievements of the Department during the year:**

**B. Any other Honours received by the Faculty Members:**

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
Paltu Kumar Dhal	Bill and Melinda Gates Foundation Abstract Award from Low and Low-to-Middle Income Countries	Bill and Melinda Gates Foundation	USA

**C. Awards received by Research Scholars/students:**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Indraneel Sengupta	Swachhta Saarthi Fellowship (SSF) 2021	The Office of the Principal Scientific Adviser to the Government of India	<b>Delhi</b>

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
20	Masters in Biotechnology		

**B. Qualifying in State/ National/ International Level Examinations**

Name of the Examination	No. of students selected/ qualified
NET	3
GRE	2
TOFEL	2
Any Other	5



## Annual Report 2020-2021

### MATHEMATICS

Phone: 033-2457-2465/2745

H.O.D : Prof. Sudeshna Banerjea

E-mail: sudeshna.banerjea@yahoo.co.in

#### 1. Vision and Mission of the Department of Mathematics:

##### A. Vision:

To develop and grow as an excellent diverse department promoting high quality of teaching, learning and research in Mathematics and applications.

##### B. Mission:

- To impart good quality of mathematics education to the young minds about the various topics of Mathematics, Statistics and computing.
- To train the students about various application of mathematics beneficial to the growth of social, economic development of the country.
- To inspire the students to achieve excellence in education and research and extend their knowledge for promoting research in Mathematics and applications in India.
- To produce self-reliant employable graduates capable of teaching, learning and research for the betterment of the society.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B.Sc.(Hons.)	3	1 <sup>st</sup> year	110
M.Sc (Day)	2	1 <sup>st</sup> Year	78
M.Sc (Night)	3	1 <sup>st</sup> Year	78

#### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
20	5	3	28

#### 4. Research Activities:

##### A. Areas of Research Activities: (Broad Areas)

Algebra, Mathematical Biology, Bio-Fluid Mechanics, Computer Science, Cosmology & Astrophysics, Differential and Computational Geometry, Dynamical Meteorology, Dynamical System, Fluid Mechanics, Functional Analysis, Game Theory, Graph Theory, Mathematical Physics, Operational Research, Plasma Dynamics, Real Analysis, Solid Mechanics.

##### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Partial Differential Equations (PG Course)	Individual	Prof. Alaka Das	SWAYA M MOOC	2020– 2021

**Annual Report 2020-2021**

Mathematical model development and analysis of bullwhip effect in closed-loop supply chain under uncertainties	Individual	<b>Prof. Bibhas Chandra Giri</b>	SERB, DST	2018-2021
Modelling of electro-osmotic flow and heat transfer in a micro-channel for microfluidic applications	Individual	<b>Dr. Gopal Chandra Shit</b>	SERB, DST	
Birkhoff-James orthogonality and its application in the geometry of Banach spaces	Individual	<b>Prof. Kallol Paul</b>	MATRICES SERB, DST	2018-2021
Anatomy of COVID-19 transmission dynamics: A modelling and computational approach from Indian perspective	Individual	<b>Prof. Nandadulal Bairagi</b>	SERB, DST	2020-2021
Modelling and analysis of stochastic HIV infection with linear and nonlinear incidence	Individual	<b>Prof. Nandadulal Bairagi</b>	CSIR	2018-2021
Modelling and analysis of stochastic ecological and eco-epidemiological systems with nonlinearity	Individual	<b>Prof. Nandadulal Bairagi</b>	Indo-French Centre for Applied Mathematics (IFCAM)	2018-2021
Exploring uncertainties for production bottlenecks of biodiesel in SCEM: Deterministic and Stochastic studies with dynamic optimization	Individual	<b>Prof. Priti Kumar Roy</b>	SERB, DST	2019-2021
Symmetries in Differential Equation and Its Application to Classical and Quantum Cosmology	Individual	<b>Prof. Subenoy Chakraborty</b>	SERB, DST	2018-2021
Integral equation and its application to the problems on interaction of waterwaves with obstacles present in ocean	Individual	<b>Prof. Sudeshna Banerjee</b>	SERB, DST	2018-2021

**C. Doctoral Research Activities:**

<b>Number of students awarded Ph.D during the year</b>	<b>Number of Ph.D students registered in the Department</b>
--	---

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):**

**(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication):**

1. Anwesha Roy, Abhijit Lahiri: "Thermoelastic Diffusion Problem for an Infinitely Long Cylinder in an Isotropic Medium", Bull. Cal. Math. Soc. Vol. 112, (5), pp 465-482 (2020).
2. Debkumar Ghosh, Abhijit Lahiri : "Three Dimensional Fibre-Reinforce Anisotropic Half Space with Lagging Behavior in the Presence of Heat Source and Gravity", Int. J. Appl. Comput. Math, Vol.40 (6), pp 1-17, <https://doi.org/10.1007/s40819-020-0783-z>(2020).
3. D. Ghosh, B. Das and A. Lahiri: "Study of an isotropic slab in context of memory-dependent derivative due to heat source" Waves in Random and Complex Media. <https://doi.org/10.1080/17455030.2020.1849868>.(2020)
4. S. Roy and A. Lahiri: "A Study on Fractional Order Thermoelastic Half Space" Int. J. of Applied Mechanics and Engineering, vol.25, No.4, pp.191-202. DOI: 10.2478/ijame-2020-0058. (2020)
5. B. Das, D. Ghosh and A. Lahiri: "Electromagnetothermoelastic analysis for a thin circular semiconducting medium", Journal of Thermal Stresses. VOL. 44, No. 4.pp. 395-408. <https://doi.org/10.1080/01495739.2021.1881001>.(2020)
6. Mondal H., and Das A: "Low dimensional models of dynamo action in rotating magnetoconvection" Chaos, Solitons & Fractals. 144: 110600. (2020)
7. Sandip Dalui, Sankirtan Sardar and Anup Bandyopadhyay: "Arbitrary amplitude ion acoustic solitons, double layers and supersolitons in a collisionless magnetized plasma consisting of non-thermal and isothermal electrons," Z. Naturforsch, published online March 5, <https://doi.org/10.1515/zna-2020-0296>(2021)
8. Debdata Debnath and Anup Bandyopadhyay, "Combined effect of Kappa and Cairns distributed electrons on ion acoustic solitary structures in a collisionless magnetized dusty plasma", Astrophys Space Sci 365, 72. <https://doi.org/10.1007/s10509-020-03786-6>(2020).
9. S. Dalui and A. Bandyopadhyay, "Effect of Landau damping on ion acoustic solitary waves in a collisionless unmagnetized plasma consisting of nonthermal and isothermal electrons" Indian J Phys 95, 367–381. <https://doi.org/10.1007/s12648-020-01731-51>.(2021)
10. Roy, Soumendu; Dey, Santu; Bhattacharyya, Arindam, "Conformal Einstein soliton within the framework of para-Kähler manifolds". Differ. Geom. Dyn. Syst. 23, 235–243. (2021)
11. Roy, Soumendu; Dey, Santu; Bhattacharyya, Arindam, "Kenmotsu metric as a conformal  $\eta$ -Einstein soliton" Carpathian Math. Publ. 13 (1), 110–118(2021)
12. Bhunia, Nandan; Pahan, Sampa; Bhattacharyya, Arindam, "Application of hyper-generalized quasi-Einstein spacetimes in general relativity". Proc. Nat. Acad. Sci. India Sect. A 91, no. 2, 297–307.(2021)
13. Panda, Sibsankar; Bhattacharyya, Arindam; Halder, Kalyan, "Symmetries on trans-Sasakian space forms". J. Chungcheong Math. Soc. 33 no. 4, 375–386(2020)
14. Dey, Santu; Pal, Buddhadev; Bhattacharyya, Arindam, "Conformal mappings of generalized quasi-Einstein manifolds admitting special vector fields". Gulf J. Math. 9, no. 1, 27–41(2020)
15. Roy, Soumendu; Dey, Santu; Bhattacharyya, Arindam, "Yamabe solitons on  $(LCS)_n$ -manifolds". J. Dyn. Syst. Geom. Theor. 18, no. 2, 261–279, (2020).
16. Sarkar, S.; Pahan, S.; Bhattacharyya, A., "Conformal  $\eta$ -Ricci soliton on a type of  $(LCS)_n$  manifold". Acta Univ. Apulensis Math. Inform. No. 63, 21–33, (2020).
17. Ganguly, Dipen; Bhattacharyya, Arindam A, "study on conformal Ricci solitons in the framework of  $(LCS)_n$ -manifolds". Ganita 70, no. 2, 201–216, (2020).
18. Ganguly, Dipen; Bhattacharyya, Arindam, "Conformal Ricci soliton on almost co-Kaehler manifold". Advances in Mathematics: Scientific Journal 9 (2020), no.10, 8399–8411, (2020).
19. Patra, Dhriti Sundar; Ghosh, Amalendu; Bhattacharyya, Arindam, "The critical point equation on Kenmotsu and almost Kenmotsu manifolds". Publ. Math. Debrecen 97, no. 1-2, 85–99, (2020).

## Annual Report 2020-2021

20. Karmakar, Payel; Bhattacharyya, Arindam, "Ricci solitons on submanifolds of some indefinite almost contact manifolds". *Ganita* 70, no. 1, 95–104, (2020).
21. Karmakar, Payel; Bhattacharyya, Arindam, "Anti-invariant submanifolds of some indefinite almost contact and paracontact manifolds". *Bull. Cal. Math. Soc.*, 112(2), 95-108, (2020).
22. Alam, Samser; Bhattacharyya, Arindam, "Some weakly symmetric Kähler manifolds". *Ganita* 70, no. 1, 33–40, (2020).
23. N. Sen, S. Bardhan, B.C. Giri: "Effectiveness of consignment stock policy under space limitations and deterioration", *International Journal of Production Research* 59(6) 1834-1851, (2021).
24. N. Sen, S. Bardhan, B.C. Giri: "Consignment stock policy in an integrated vendor-buyer model for deteriorating item with stock dependent demand under buyer's space limitation", *RAIRO – Operations Research* 55 S1425–S1446, (2021).
25. C. Mondal, B.C. Giri: "Optimizing price, quality and CSR investment under competing dual recycling channels in a sustainable closed-loop supply chain", *CIRP Journal of Manufacturing Science and Technology* 35, 193-208, (2021).
26. M.U. Molla, B.C. Giri, P. Biswas: "Extended PROMETHEE method with Pythagorean fuzzy sets for medical diagnosis problems", *Soft Computing* 25(6), 4503-4512, (2021).
27. B.C. Giri, J. Majhi, K.S. Chaudhuri: "Coordination mechanisms of a three-layer supply chain under demand and supply risk uncertainties", *RAIRO – Operations Research* 55 (2021) S2593-S2617, (2021).
28. S. Dey, B.C. Giri: "Analyzing a closed-loop sustainable supply chain with duopolistic retailers under different game structures", *CIRP Journal of Manufacturing Science and Technology* 33, 222-233, (2021).
29. A. Chakraborty, T. Maiti, B.C. Giri: "Consignment stock policy in a closed-loop supply chain", *RAIRO – Operations Research* 55, S1913–S1934, (2021)
30. S. Sarkar, B.C. Giri: "Optimal ordering policy in a two-echelon supply chain model with variable backorder and demand uncertainty", *RAIRO – Operations Research* 55, S673-S698, (2021).
31. H. Pal, S. Bardhan, B.C. Giri: "Optimal production time and preservation technology investment for seasonal deteriorating products with a generalized ramp-type demand", *International Journal of Mathematics in Operational Research* 20(1) 123-148, (2021).
32. S. Sarkar, B.C. Giri: "Stochastic supply chain model with imperfect production and controllable defective rate", *International Journal of Systems Science: Operations & Logistics*, 7(2) 133-146, (2021).
33. M. De, B.C. Giri: "Modelling a closed-loop supply chain with a heterogeneous fleet under carbon emission reduction policy", *Transportation Research Part E: Logistics and Transportation Review* 133 Article 101813, (2020).
34. C. Mondal, B.C. Giri: "Pricing and used product collection strategies in a two-period closed-loop supply chain under greening level and effort dependent demand", *Journal of Cleaner Production* 265, Article 121335, (2020).
35. C. Mondal, B.C. Giri, T. Maiti: "Pricing and greening strategies for a dual-channel closed-loop green supply chain", *Flexible Services and Manufacturing Journal* 32, 724-761, (2020).
36. Z. Dai, K. Gao, B.C. Giri: "A hybrid heuristic algorithm for cyclic inventory-routing problem with perishable products in VMI supply chain", *Expert Systems with Applications* 153 Article 113322, (2020).
37. S. Sarkar, S. Tiwari, H.M. Wee, B.C. Giri: "Channel coordination with price discount mechanism under price-sensitive market demand", *International Transactions in Operational Research* 27(5), 2509-2533, (2020).
38. S. Sarkar, B.C. Giri: "A vendor-buyer integrated inventory system with variable lead time and uncertain market demand", *Operational Research* 20(1) 491-515, (2020).
39. B.C. Giri, M.U. Molla, P. Biswas: "TOPSIS method for neutrosophic hesitant fuzzy multi-attribute decision making", *Informatika* 31(1) 35-63, (2020).
40. S. Sarkar, B.C. Giri, A.K. Sarkar: "A vendor-buyer inventory model with lot size and production rate dependent lead time under time value of money", *RAIRO – Operations Research*, 54(4) 961-979, (2020).

## Annual Report 2020-2021

41. B.C. Giri, M. Masanta: "Developing a closed-loop supply chain model with price and quality dependent demand and learning in production in a stochastic environment", *International Journal of Systems Science: Operations & Logistics*, 7(2) 147-163, (2020).
42. B. Roy, B.C. Giri: "A three-echelon supply chain model with price and two-level quality dependent demand", *RAIRO - Operations Research*, 54(1) 37-52,(2020).
43. B.C. Giri, M.U. Molla, P. Biswas: "Grey relational analysis method for SVTrNN based multi-attribute decision making with partially known or completely unknown weight information", *Granular Computing* 5(4) 561-570, (2020).
44. B.C. Giri, A. Dash, A.K. Sarkar: "A single-manufacturer multi-retailer integrated inventory model with price-dependent demand and stochastic lead time", *International Journal of Supply and Operations Management*, 7(4) 384-409, (2020).
45. Maji C, Kesh D, Mukherjee D., "The effect of predator density dependent transmission rate in an eco-epidemic model", *Differential Equations and Dynamical Systems*, 28, 479 -493, (2020).
46. Maji C, Mukherjee D, Kesh D., "Study of a fractional  $\alpha$  order model of chronic wasting disease", *Mathematical Methods in the Applied Sciences*, 43 (7), 4669 – 4682, (2020).
47. Mondal R, Kesh D, Mukherjee D., "Dynamical Analysis of a Fractional Order Rosenzweig-MacArthur Model Incorporating Herbivore Induced Plant Volatile", *Chinese Journal of Physics*, 68, 258-269, (2020).
48. Mondal R, Saha S, Kesh D, Mukherjee D., "Basin Transition and Alternative States: Role of Multi-species Herbivores-Induced Volatile in Plant–Insect Interactions", *Bulletin of Mathematical Biology*, 83:100, <https://doi.org/10.1007/s11538-021-00930-3>, (2020).
49. S Chouhury, D Deb, S Ray, F Rahaman, B K Guha: "Noncommutative black hole in the Finslerianspacetime", *Class. Quan.Grav*, 38, 145019 (2021).
50. M Mondal, A K Yadav, P Pradhan, S Islam, F Rahaman, B K Guha: "Null Geodesics and QNMs in the field of Regular Black Holes", *Int. J. Mod. Phys.D*, 30, 2150095 (2021).
51. N Singh, A Banerjee, S.K. Maurya, F Rahaman, A Pradhan: "Color-flavor locked quark stars in energy-momentum squared gravity", *Physics of the Dark Universe*, 31, 100774 (2021).
52. M Mondal, F Rahaman, N Singh: "Lyapunov exponent, ISCO and KolmogorovSenai entropy for KerrKiselev black hole", *Eur. Phys. J. C* 81:84 (2021).
53. S Das, N Singh, N Pant, L Baskey, F Rahaman: "Modeling of compact stars: an anisotropic approach", *Gen RelGrav*, 53, 25 (2021).
54. S Maurya, D Shee, D Deb, S Ray F Rahaman: "Charged strange stellar model describing by Tolman V metric" *Results in Physics*, 20, 103648 (2021).
55. S Maurya, N Singh, P Bhar F Rahaman: "Anisotropic stars with a modified polytropic equation of state", *PhysicaScripta*, 95, 11, 115301 (2020).
56. A K Yadav, S Ray, F Rahaman, U Debnath, D Deb: "Non singular solution with anisotropic fluid in mini bang cosmology", *Int J Mod Phys D*, 29, 2050118 (2020).
57. S Sarkar, N Sarkar, F Rahaman: "Traversable wormholes in the bulge of Milky Way Galaxy with Global Monopole Charge", *The European Physical Journal C*, 80, 882 (2020).
58. S S De, N Paul, N Islam, F Rahaman: "Rotation Curve and Dark Matter Halo profile in Finsler Geometry" *Can.J.Phys.*, 99, 439 (2021).
59. K N Singh, A Banerjee, F Rahaman, M K Jasim: "Conformally symmetric traversable wormholes in f (R, T) gravity", *Annals of Physics*, 422, 168295 (2020).
60. A. Ali, S Molla, F Rahaman, S Ray, R Amin, G Mondal: "Dilaton-axion Black Hole under the Solar System Tests", *New Astronomy*, 83, 101494 (2020).
61. N Singh, A. Errehymy, M Daud, F Rahaman: "Exploring physical properties of compact stars in f (R, T)–gravity: An embedding approach", *Chin. Phys. C* 44, 105106 (2020).
62. N Singh, S Sarkar, F Rahaman: "Tolman IV fluid sphere in bigravity", *Eur. Phys. J. Plus* 135, 484 (2020).
63. K. N. Singh, S. K. Maurya, A. Errehymy, F. Rahaman, M. Daoude: "Physical properties of class I compact star model for linear and Starobinsky-f(R,T) functions", *Physics of the Dark Universe*, 30, 100620 (2020).

## Annual Report 2020-2021

64. N Singh, A Ali, F Rahaman, S Nasri: “Compact stars with exotic matter”, *Physics of the Dark Universe*, 29, 100575 (2020).
65. M Rahaman, N Singh, A Daoud, F Rahaman, M Errehymy: “Anisotropic Karmarkar stars in  $f(R,T)$ -gravity”, *The European Physical Journal C* , 80 , 272(2020).
66. A Das, S Ghosh, D Deb F Rahaman, S Ray: “Study of gravastars under  $f(T)$  gravity”, *Nuclear Physics B*, 954, 114986 (2020).
67. K Singh, A Banerjee, F Rahaman, M K Jasim: “Conformally symmetric traversable wormholes in modified teleparallel gravity”, *Phys. Rev. D*, 101, 084012 (2020).
68. K Singh , N Sarkar, F Rahaman, S Sarkar: “Relativistic compact stars with dark matter density profile”, *The European Physical Journal C* , 80 , 255 (2020).
69. S Banerjee, N Paul, F Rahaman, S Ghosh: “Study of Gravastars in Finslerian Geometry”, *The European Physical Journal Plus*, 135, 185 (2020).
70. S Roy Choudhury, D Deb, S Ray, F Rahaman, B K Guha: “Anisotropic strange star in Finsler geometry”, *Int. J.Mod. Phys.D* , 29, 2050001 (2020)
71. S. Majee, S. Maiti, G. C. Shit, D.K. Maiti: “Spatio-temporal evolution of magnetohydrodynamic blood flow and heat dynamics through a porous medium in a wavy-walled artery”, *Computers in Biology and Medicine (Elsevier)*, vol.-135 104595, (2021).
72. S. Maiti, S. Shaw, G. C. Shit: “Fractional order model of thermo-solutal and magnetic nanoparticles transport for drug delivery applications”, *Colloids and Surfaces B: Biointerfases (Elsevier)*, vol.-203 111754, (2021).
73. A. Rana, M. Reza, G. C. Shit: “Thermo-fluidic transport of electromagneto hydrodynamic flow in a corrugated porous medium microchannel”, *The European Physical Journal Plus (Springer)*, vol.-136, 496(2021).
74. A. Bera, S. Dutta, J.C. Misra, G. C. Shit: “Computational Modeling of the Effect of Blood Flow and Dual Phase Lag on Tissue Temperature During Tumor Treatment by Magnetic Hyperthermia”, *Mathematics and Computers in Simulation (Elsevier)*, vol.-188, 389 – 403, (2021).
75. P. Mondal, D. K. Maiti, G. C. Shit, G. Ibanez: “Heat Transfer and Entropy Generation in a MHD Couette-Poiseuille Flow Through a Microchannel with Slip, Suction-Injection and Radiation”, *Journal of Thermal Analysis and Calorimetry (Springer)*, <https://doi.org/10.1007/s10973-021-10731-4>(2021)
76. S. Maiti, S. Shaw, G. C. Shit: “Fractional order model for thermochemical flow of blood with Dufour and Soret effects under magnetic and vibration environment”, *Colloids and Surfaces B: Biointerfases (Elsevier)*, vol.-197 111395, (2021).
77. P. Dey, G. C. Shit: “Electroosmotic flow of fractional second-grade fluid with interfacial slip and heat transfer in the microchannel when exposure to a magnetic field”, *Heat Transfer – Asian Research (Wiley)*, vol.-50 2643 – 2666, (2021).
78. N. K. Ranjit, G. C. Shit, D. Tripathi: “Electrothermal analysis in two-layered couple stress fluid flow in an asymmetric microchannel via peristaltic pumping”, *Journal of Thermal Analysis and Calorimetry (Springer)*, vol.-144, 1325 – 1342, (2021).
79. S. Patra, G. C. Shit, B. Das: “Computational Model on Magnetothermoelastic analysis of a rotating cylinder using finite difference method”, *Waves in Random and Complex Media (Taylor & Francis)*, <https://doi.org/10.1080/17455030.2020.1831710>(2020).
80. S. Majee, G. C. Shit: “Modeling and simulation of blood flow with magnetic nanoparticles as carrier for targeted drug delivery in the stenosed artery”, *European Journal of Mechanics / B Fluids (Elsevier)*, vol.-83 42 – 57, (2020).
81. G. C. Shit, A. Bera: “Mathematical model to verify the role of magnetic field on blood flow and its impact on thermal behavior of biological tissue for tumor treatment”, *Biomedical Physics and Engineering Express (IOP Science)*, vol.-6 015032, (2020).
82. S. Maiti, S. Shaw, G. C. Shit: “Caputo–Fabrizio fractional order model on MHD blood flow with heat and mass transfer through a porous vessel in the presence of the thermal radiation”, *Physica A: Statistical Mechanics and its applications (Elsevier)*, vol.-540 123-149, (2020).
83. P. Bhunia and K. Paul, “New upper bounds for the numerical radius of Hilbert space operators”, *Bull. Sci. Math.* 167, 102959. <https://doi.org/10.1016/j.bulsci.2021.102959>,(2021).

## Annual Report 2020-2021

84. P. Bhunia, K. Paul and R. K. Nayak, "Sharp inequalities for the numerical radius of Hilbert space operators and operator matrices", *Math. Inequal. Appl.*, 24(1), 167-183. dx.doi.org/10.7153/mia-2021-24-12, (2021)
85. P. Bhunia, A. Bhanja, S. Bag and K. Paul, "Bounds for the Davis-Wielandt radius of bounded linear operators", *Ann. Funct. Anal.* 12:18. <https://doi.org/10.1007/s43034-020-00102-9>,(2021)
86. D. Sain, A. Mal, P. Bhunia and K. Paul, "On numerical radius and Crawford number attainment sets of a bounded linear operator", *J. Convex Anal.* 28(1), 067-080, (2021).
87. P. Bhunia, S. Bag and K. Paul, "Bounds for zeros of a polynomial using numerical radius of Hilbertian space operators", *Ann. Funct. Anal.* 12:21. <https://doi.org/10.1007/s43034-020-00107-4>,(2021).
88. J. Sen, D. Sain and K. Paul, "Orthogonality and norm attainment of operators in semi-Hilbertian spaces", *Ann. Funct. Anal.* 12:17, <https://doi.org/10.1007/s43034-020-00104-7>,(2021).
89. D. Sain, A. Mal, K. Mandal and K. Paul, "On uniform Bishop-Phelps-Bollobás type approximations of linear operators and preservation of geometric properties", *J. Math. Anal. Appl.*, 494, 124582. <https://doi.org/10.1016/j.jmaa.2020.124582>,(2021).
90. A. Mal, S. Dey and K. Paul, "Characterization of k-smoothness of operators defined between infinite-dimensional spaces", *Linear Multilinear Algebra*, 2020. <https://doi.org/10.1080/03081087.2020.1844130>, Published online: 09 November,(2020).
91. S. Bag, P. Bhunia and K. Paul, "Bounds of numerical radius of bounded linear operator using t-Aluthge transform", *Math. Inequal. Appl.* 23(3), 9911004. <https://doi.org/10.7153/mia-2020-23-76>,(2020).
92. P. Bhunia and K. Paul, "Some improvements of numerical radius inequalities of operators and operator matrices", *Linear Multilinear Algebra*, <https://doi.org/10.1080/03081087.2020.1781037>,(2020).
93. A. Mal and K. Paul, "Birkhoff-James orthogonality to a subspace of operators defined between Banach spaces", *J. Operator Theory*, doi: 10.7900/jot.2019nov12.2262, (2020).
94. P. Bhunia, K. Feki and K. Paul, "A-numerical radius orthogonality and parallelism of semi-Hilbertian space operators and their applications", *Bull. Iran. Math. Soc.*, 47, 435-457.<https://doi.org/10.1007/s41980-020-00392-8>,(2021)
95. J. Sen, A. Mal and K. Paul, "Characterization of approximate Birkhoff-James orthogonality sets in a Banach space", *J. Convex Anal.*, 27, 881-892, (2020).
96. Sanjoy Ghosal, M. C. Lisan-Garcia, Manasi Mandal, Mandobi Banerjee, "Influence of  $\theta$ -metric spaces on the diameter of rough weighted  $I_2$ -limit set", *Filomat* 34 (3) 737-750, (2020).
97. Manasi Mandal, Mandobi Banerjee, "Inscription on statistical convergence of order  $\alpha$ ", *Filomat* 35 (7) (2021).
98. Biswaranjan Khanra and Manasi Mandal, "On 2-prime ideals in commutative semigroups", *Annals of the "Alexandru Ioan Cuza" University of Iași (New Series). Mathematics*. Accepted on 29<sup>th</sup> March 2021.
99. Manasi Mandal, Nita Tamang and Sampad Das, "On Primary Hyperideals of Ternary Hypersemiring", *Journal of Hyperstructure* 10(1) 22-37, (2021)
100. Manasi Mandal, Nita Tamang and Sampad Das, "Left Bi-quasi and Minimal Left Bi-quasi Ideals of Ternary Semiring", *Southeast Asian Bulletin of Mathematics* 45, 217-226, (2021).
101. Sarbani Mukherjee(Goswami) and Manasi Mandal, "Fuzzy Structure Space of  $\Gamma$ - Semigroups", *Journal of Calcutta Mathematical Society* 16(2), 103-112, (2020)
102. Majumder, A., Adak, D. Bairagi, N.: "Persistence and extinction of species in a disease-induced ecological system under environmental stochasticity." *Physical Review E*, 103, Doi: 10.1103/PhysRevE.103.032412, (2021).
103. Majumder, A., Adak, D. Bairagi, N.: "Persistence and extinction criteria of Covid-19 pandemic: India as a case study", *Stochastic Analysis and Applications*, Doi: 10.1080/07362994.2021.1894172, (2021).
104. Chakraborty, B., Baek, H., Bairagi, N.: "Diffusion-induced regular and chaotic patterns in a ratio-dependent predator-prey model with fear factor and prey refuge", *Chaos*, Doi: 10.1063/5.0035130, (2021).

## Annual Report 2020-2021

105. Paul, A., Anand, R., Karmakar, S. P., Rawat, S., Bairagi, N., Chatterjee, S.: “Exploring gene knockout strategies to identify potential drug targets using genome-scale metabolic models.” *Scientific Reports*, 11(1), 1-13, (2021).
106. Gupta, A. Kumar, A. Anand, R., Bairagi, N., Chatterjee, S.: “Genome scale metabolic model driven strategy to delineate host response to *Mycobacterium tuberculosis* infection.” *Molecular Omics*, Doi. 10.1039/D0MO00138D, (2021).
107. Klionsky, D. J., Abdel-Aziz, A. K., Abdelfatah, S., Abdellatif, M., Abdoli, A., Bairagi, N., & Bartek, J., “Guidelines for the use and interpretation of assays for monitoring autophagy (4<sup>th</sup> Edition)”. *Autophagy*, 17(1), 1-382, (2021).
108. Adak, D., Bairagi, N., Hakl, R.: “Accounting for multi-delay effects in an HIV-1 infection model with saturated infection rate, recovery and proliferation of host cells”. *BIOMATH*, 9(2), 2012297, (2020).
109. Sarmah, D. K., Bairagi, N., Chatterjee, S.: “Tracing the footsteps of autophagy in computational biology”, *Briefings in Bioinformatics*, Doi.org/10.1093/bib/bbaa286, (2020).
110. Paul, A., Chatterjee, S., Bairagi, N.: “Covid-19 transmission dynamics during the unlock phase and significance of testing” *Journal of Vaccines & Vaccination*, 11(6), 1000433, (2020).
111. Saha, S., Mishra, A., Dana, S. K., Hens, S., Bairagi, N.: “Infection spreading and recovery in a square lattice” *Physical Review E*, 102(5), doi: 10.1103/PhysRevE.102.052307, (2020).
112. Adak, D., Majumder, A. Bairagi, N.: “Mathematical perspective of Covid-19 pandemic: disease extinction criteria in deterministic and stochastic models” *Chaos, Solitons & Fractals*, doi.org/10.1016/j.chaos.2020.110381, (2020).
113. Majumder, A., Bala, T., Adak, D., N’Guerekata, G. M., Bairagi, N.: “Evaluating the current epidemiological status of Italy: Insights from a stochastic epidemic model”, *Nonlinear Studies*, 27(4), 1169-1177, (2020).
114. Mondal, C., Majumder, A., Adak, D., Bairagi, N.: “Mitigating the transmission of infection and death due to SARS CoV-2 through non-pharmaceutical interventions and repurposing drugs”. *epidemic model. ISA Transaction*, doi.org/10.1016/j.isatra.2020.09.015, (2020).
115. A. K. Roy, M. Nelson, Roy Priti Kumar: “A control-based mathematical study on psoriasis dynamics with special emphasis on IL – 21 and IFN –  $\gamma$  interaction network”, *Mathematical Methods in Applied Sciences*, DOI: 10.1002/mma.7635, (2021).
116. Banerjee A, Chakraborty M, Bandyopadhyay G, Roy Priti Kumar, Ray S: “Forecasting environmental factors and zooplankton of Bakreswar reservoir in India using time series model”, *Ecological Informatics*, Elsevier, Volume: 60, Pages: 1 – 37. DOI: 10.1016/j.ecoinf. 2020.101157, (2020)
117. Roy Priti Kumar, A. K. Roy, E. N. Khailov, F A Basir, É. V. Grigorieva: “A Model of the Optimal Immunotherapy of Psoriasis by Introducing IL - 10 and IL - 22 Inhibitor”, *Journal of Biological Systems*, Vol. 28, No. 03, pp. 609-639, <https://doi.org/10.1142/S0218339020500084>, (2020).
118. Cao Xianbing, Basir F. A., Xue-Zhi Li, Roy Priti Kumar, “Impact of combined therapy in HIV-1 Treatment: A double impulsive Approach”, *International Journal of Applied Computational Mathematics*, DOI: 10.1007/s40819-020-00861-y, (2020).
119. Koushik Garain, Krishna Pada Das, Partha Sarathi Mandal, Santosh Biswas: “Density dependent mortality and weak Allee effect control chaos-conclusion drawn from a tri-trophic food chain with prey refugia.”; *NONLINEAR STUDIES* 27 (2) :529-549, (2020).
120. Saddam Mollah, Santosh Biswas: “Effect of awareness program on diabetes mellitus: deterministic and stochastic approach.”, *Journal of Applied Mathematics and Computing* 66:61–86, (2021).
121. Mrinmoy Sardar, Santosh Biswas, Subhas Khajanchi: “The impact of distributed time delay in a tumor-immune interaction system.”, *Chaos, Solitons and Fractals* 142, 110483, (2021).
122. S. Pan, W. Yang, E. Di Valentino, A. Shafieloo and S. Chakraborty, “Reconciling  $H_0$  tension in a six parameter space?” *JCAP* 2006, no. 06, 062 (2020).
123. Soumya Chakraborty, S. Mishra and S. Chakraborty, “Dynamical system analysis of three-form field dark energy model with baryonic matter” *Eur. Phys. J. C* 80, no.9, 852(2020).
124. A. Bose and S. Chakraborty, “Cosmic evolution in f(T) gravity theory” *Mod. Phys. Lett. A* 35, no.36, 2050296 (2020).



## Annual Report 2020-2021

125. A. Bose and S. Chakraborty, “Does emergent scenario in Hořava–Lifshitz gravity demand a ghost field?” *Phys. Dark Univ.* 30, 100740 (2020).
126. Z. Iqbal, J. Sengupta, S. Chakraborty, “Magnetic Trajectories Corresponding to Killing Magnetic Fields in a 3-Dimensional Warped Product” *Int. J. Geom. Meth. Mod. Phys* 17, no.14,2050212 (2020).
127. Sanjukta Chakraborty, A. Bose and S. Chakraborty, “Collapse Geometry in Inhomogeneous FRW model” *Int. J. Geom. Meth. Mod. Phys* 18, no.02, 2150019 (2021).
128. B. Ghosh, S. Mitra and S. Chakraborty, “Some specific wormhole solutions in  $f(R)$ -modified gravity theory” *Mod. Phys. Lett. A* 36, no. 05, 2150024 (2021).
129. B. Ghosh, S. Dutta, S. Mukherji and S. Chakraborty, “Static spherically symmetric wormhole with quadratic shape function and particle trajectories around it” *Int. J. Mod. Phys. A* 36, no.06, 2150046 (2021).
130. Jiteshwar Chatterjee, Piyali Kundu, Sudeshna Banerjee and Paramita Maiti: “Waves Generated on Running Stream due to a Disturbance on Sea Bed”, *Int. J. Appl. Comput. Math.*, 6:39 (2020).
131. B. Biswas, S. Kar, M. K. Sen: “Square element graph of square-subtract rings”; Online published in *Discrete Mathematics, Algorithms and Applications*, World Scientific Publishing Company, <https://doi.org/10.1142/S1793830921501421>.
132. R. P. Sharma, M. Dadhwal, R. Sharma and S. Kar: “On the Primary Decomposition of  $k$ -Ideals and Fuzzy  $k$ -Ideals in Semirings”; *Fuzzy Information and Engineering*, Taylor and Francis, VOL. 13, NO. 2, 223–235. <https://doi.org/10.1080/16168658.2021.1950390>(2021).
133. S. Kar & I. Dutta: “Soft ideals of soft ternary semigroups”; *Heliyon*, Vol. 7, Issue 6, <https://doi.org/10.1016/j.heliyon.2021.e07330>,(2021).
134. S. Samata, S. Jana & S. Kar: “Note On Topological Ternary Semigroup”, *Asian-European Journal of Mathematics* Vol. 14, No. 5, 2150086 (11 pages), World Scientific Publishing Company, DOI: 10.1142/S1793557121500868, (2021).
135. B. Dhara, S. Kar & S. Kuila: “A note on multiplicative (generalized) -derivations and left ideals in semiprime rings”; *Rendiconti del Circolo Matematico di Palermo Series 2*, 70: 631–640, <https://doi.org/10.1007/s12215-020-00515-4>,(2021).
136. B. Dhara, N. Bera, S. Kar & B. Fahid: “Generalized Derivations and Generalization of Co-Commuting Maps in Prime Rings”; *Taiwanese Journal of Mathematics*, Vol. 25, No. 1, pp. 65–88, DOI: 10.11650/tjm/200801, (2021).
137. S. Purkait, T. K. Dutta & S. Kar: “ $k$ -prime and  $k$ -semiprime ideals of semirings”; Accepted for publication in *Asian – European Journal of Mathematics*, World Scientific Publishing Company, 2150041 (12 pages), DOI: 10.1142/S1793557121500418, (2021).
138. R. Sarkar, S. Kar, B. Biswas & S. Purkait: “Structure of Birkhoff center of  $c$ -semirings”; *Asian – European Journal of Mathematics*, World Scientific Publishing Company, Vol. 2150023 (9 pages), DOI: 10.1142/S1793557121500236, (2021).
139. S. Kar, I. Dutta & K. P. Shum: “Structures of ternary semigroup of mappings”; *Lobachevskii Journal of Mathematics*, Vol. 41, No. 9, pp. 1653–1659, (2020).
140. B. Biswas, R. Sen Gupta, M. K. Sen & S. Kar: “Some properties of square element graphs over semigroups”; *AKCE International Journal of Graphs and Combinatorics*, Taylor and Francis, VOL. 17, NO. 1, 118 – 130. [doi.org/10.1016/j.akcej.2019.02.001](https://doi.org/10.1016/j.akcej.2019.02.001), (2020).
141. S. Purkait, T. K. Dutta & S. Kar: “On  $m$ -clean and strongly  $m$ -clean rings”; *Communications in Algebra*, Taylor and Francis, Vol. 48, No. 1, 218 – 227. [doi.org/10.1080/00927872.2019.1640236](https://doi.org/10.1080/00927872.2019.1640236), (2020).
142. S. Kar & I. Dutta: “Global determinism of ternary semilattices”; *Asian – European Journal of Mathematics*, World Scientific, Vol. 13, No. 1, 2050083 (9 pages). DOI: 10.1142/S1793557120500837, (2020).
143. B. Dhara, S. Kar & P. Das: “Pair of generalized derivations acting on multilinear polynomials in prime rings”; *Hacetatepe Journal of Mathematics and Statistics*, Volume 49 (2), 740 – 753. DOI: 10.15672/hujms.588747, (2020).
144. S. Kar, A. Roy & I. Dutta: “On regularities in po-ternary semigroups”; *Quasigroups and Related Systems*, Vol. 28, 149 – 158, (2020).

## Annual Report 2020-2021

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year):

Banerjee A, Ray S, Roy Priti Kumar: Concepts of Robustness and Ecosystem Health – with case studies from the Indian context, Biodiversity and Livelihood: Lessons from Community Research in India, Bentham Science publishers ;( Eds: Oommen V. Oommen, K. P. Laladhas, ErachBharucha) Chapter: 8; Pages: 105 – 120; ISBN: 978-981-14-8215-1 (online); DOI: 10.2174/97898114821511200101, 2020

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year):

1. S. Biswas and A. Das: “Dynamic characterizers of spatiotemporal intermittency and mapping to cellular automation: An inhomogeneous coupled map lattice” International Conference of Numerical Analysis Applied Mathematics 23-28 September 2019, AIP Conference Proceedings 2293, 390003 (2020).
2. Md Osman Gani, Somenath Kuiry, Alaka Das, Mita Nasipuri, and Nibar Das: “Multispectral Object Detection with Deep Learning”, In International Conference on Computational Intelligence in Communications and Business Analytics, pp. 105-117, Springer, Cham. (2021)
3. A. Rana, G. C. Shit, M. Reza: “Patterned hydrodynamic slip flow control and thermal transport in a wavy microchannel through porous medium with combined Electromagnetohydrodynamic effect”, Journal of Physics: Conference series (IOP Science), vol.-1849, 012016, (2021).
4. Manasi Mandal and Sarbani Mukherjee (Goswami), Fuzzy Structure Space of Semigroups, AIP Conference Proceedings, 2293,180012, <https://doi.org/10.1063/5.0026691>, (2020).
5. N. Mahata and S. Chakraborty, “Dynamical system analysis of three fluid cosmological model” AIP Conference Proceedings 2293, 290002 (2020); <https://doi.org/10.1063/5.0028049>, Published Online: 25 November 2020
6. Piyali Kundu, Rumpa Chakraborty and Sudeshna Banerjea: “Scattering of Water Waves by a Circular Trench”, Proceedings of the 14th International Conference on Vibration Problems, Lecture Notes in Mechanical Engineering, Springer Nature Singapore Pte Ltd. E. J. Sapountzakis et al. (eds.), (2021).

### H. Research Collaboration with other Departments/Institutes/Industries

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Prof. Arindam Bhattacharyya</b>	Prof. Peter Haissinsky	Aix Marseille University	Research Work	2 years
<b>Prof. Kallol Paul</b>	Prof. Mohammad Sal Moshelian	Ferdowsi University of Mashhad, Iran	Research Work	
<b>Prof. Kallol Paul</b>	Prof. Kais Feki	University of Sfax, Sfax, Tunisia	Research Work	

### 5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year

#### A. Books/Monographs Published:

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Dr. F Rahaman</b>	The general theory of relativity	Cambridge University Press		2021
<b>Manasi Mandal</b>	Semigroups and $\Gamma$ -Semigroups: In Terms of Fuzzy and Intuitionistic Fuzzy Sets	Mauritius, Scholars' Press	978-613-8-94941-1	2021

**Annual Report 2020-2021**

**E. Orientation Courses/ Refresher Courses Attended/ Delivered Lectures**

<b>Name of the Teacher</b>	<b>Title of the Course</b>	<b>Place</b>	<b>Date</b>
<b>Prof. Kallol Paul</b>	UGC-HRDC sponsored Refresher course on Mathematical Sciences	DDU Gorakhpur University, Gorakhpur	29.12.2020 to 11.01.2021
<b>Prof.Kallol Paul</b>	UGC-HRDC, NBU sponsored Refresher Course on Mathematics	North Bengal University, West Bengal	08.01.2021 to 21.01.2021

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Arindam Bhattacharyya</b>	Invited talk	International Webinar on Recent Trends and Developments in Mathematics and Mathematical Sciences	Belda College (Online)	16-17 October, 2020
<b>Prof. Arindam Bhattacharyya</b>	Invited talk	International Conference of International Academy of Physical Sciences	Online	18-20 December, 2020
<b>Prof. Arindam Bhattacharyya</b>	Invited talk	International Web Conference on the Mathematical Methods and Models	Amity University (Online)	6-8 November, 2020
<b>Prof Bibhas C. Giri</b>	Invited talk	Emerging issues in Supply Chain Management: Interruption, Opportunities and Challenges	Kazi Nazrul University, Asansol	6-7 June, 2020
<b>Prof Bibhas C. Giri</b>	Chaired a session	The Role of Applied Mathematics in Present Global Crises	Department of Applied Mathematics, Vidyasagar University	5-7 August, 2020
<b>Prof. Farook Rahman</b>	Invited talk on "Thin Accretion Disk around Wormholes"	International Web Conference on the Mathematical Methods and Models	Amity University	6-8 November, 2020
<b>Prof. Farook Rahman</b>	Invited talk on "Traversable wormholes and thin accretion disks"	International Web Conference on Advances in relativistic astrophysics and cosmology (ARAC-2020)	Sant Longowal Institute of Engineering and Technology	2020
<b>Prof. Farook Rahman</b>	Invited talk on "Shadow of Wormholes"	National Seminar on Recent Advances in Astrophysics and Cosmology	North Bengal University	2021

**Annual Report 2020-2021**

<b>Prof. Farook Rahman</b>	Invited talk on Accretion disks and Shadow of Wormholes	Faculty development program	Forum for Interdisciplinary Research in Mathematical Sciences, Jaipur	2021
<b>Prof. Farook Rahman</b>	Chaired a session	Recent Advances in Applied Mathematics: Theory and Computation	Calcutta University	2021
<b>Dr. Gopal Chandra Shit</b>	Invited talk on “Blood flow with magnetic nanoparticles as a carrier for targeted drug delivery.”	Recent Advancement in Physical Sciences	National Institute of Technology, Uttarakhand	19 - 20 December, 2020
<b>Dr. Gopal Chandra Shit</b>	Invited talk on “Blood flow and heat transfer in the diseased artery under magnetic environment”	International Web Conference on Mathematical Methods and Models in Applied Sciences	Amity University, Kolkata and Calcutta Mathematical Society	06 – 08 November, 2020
<b>Prof. Kallol Paul</b>	Invited talk	International Webinar Series on Applications of Mathematics	Gurucharan College, Silchar, Assam	20-22 August, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	Two-day National Webinar on Mathematical Perspective of COVID-19 Outbreak: Predictions, Precautions & Preventive Measures	Sidho-Kanho-Birsha University	11-12 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	National Webinar on Mathematics: Present Scenario	Guru Nanak Khalsa College, Haryana	13 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	National Webinar on Mathematical Modelling Perspective for Prediction of Spread & Control Strategies for Covid-19	Jiwaji University, Gwalior	24 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	National level Webinar on Covid-19	Vidyasagar College for Women, Kolkata	29 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	International Web Conference on Science, Humanities and Social Science	Maha Raja Bir Bikram University, Agartala, Tripura	09-10 July, 2020

**Annual Report 2020-2021**

<b>Prof. Nandadulal Bairagi</b>	Invited talk	Two Days National Webinar on Advances in Mathematics and Its Applications	Panskura Banamali College, Purba Medinipur	28-29 August, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	One Day National Level Webinar on Mathematical Modelling and Its Real-World Applications	Hoogly Women's College, Hooghly	08 September, 2020
<b>Dr. Santosh Biswas</b>	Chaired a session	Analysis, Algebra, Combinatorics and their Applications (ICAACA 2020)	Department of Mathematics, Jadavpur University	20-22 January, 2020
<b>Prof. Subenoy Chakraborty</b>	Invited talk on "Modified gravity theories and Einstein gravity: an equivalent prescription"	Neem Seminar	IUCAA	5 May, 2020
<b>Prof. Subenoy Chakraborty</b>	Invited talk on "Relativity from the view point of an ignorant person"		Dr. Meghnad Saha College	24 June, 2020
<b>Prof. Subenoy Chakraborty</b>	Invited talk on "Einstein and our Universe: A Layman's perspective"	Refresher's Course in Emerging trends in Science and Technology	Burdwan University	10 September, 2020
<b>Prof. Subenoy Chakraborty</b>	Invited talk on "Relativity Theory: A Layman's perspective"	"Applied Mathematical Skills for Science & Engineering using contemporary tools"	Department of Applied Science, MAKAUT	14 September, 2020
<b>Prof. Subenoy Chakraborty</b>	Invited talk on "Mathematics and the effect of Einstein Relativity"	AACMME-2021	NIT Rourkela	24 February, 2021
<b>Prof. Subenoy Chakraborty</b>	Invited talk on "Differential Geometry and Einstein's Relativity Theory: One implies the other"	"Refresher Course in Mathematical Science"	University of Calcutta	17 March, 2021

**Annual Report 2020-2021**

<b>Prof. Sudeshna Banerjea</b>	Invited Lecture	Scope of Mathematical Modelling: Theory to Application	Department of Mathematics, KhalisaniMahavidyalaya, Chandannagar	30 July, 2020
<b>Prof. Sudeshna Banerjea</b>	Invited Lecture	One Day Webinar On Pure and Applied Mathematics	Diamond Harbour Women's University, 24 Parganas(S)	6 August, 2021
<b>Dr. Sukhendu Kar</b>	Invited talk	Refresher Course on Mathematics	Department of Mathematics, University of North Bengal, Darjeeling,	08-21 January,2021
<b>Dr. Sukhendu Kar</b>	Invited talk	Recent Trends in Mathematics	Department of Mathematics, Nagar College, Murshidabad	28 September, 2020
<b>Dr. Sukhendu Kar</b>	Invited talk	Algebraic Graph Theory	Department of Mathematics, School of Mathematical Sciences, Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon, Maharashtra	02-04 October, 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Manasi Mandal</b>	On Prime Hyperideals of Ternary Hypersemiring	IWCEAMMS-2020	Calcutta Mathematical Society	12-14 December, 2020
<b>Dr. Manasi Mandal</b>	Semigroups where 2-absorbing ideals are prime and maximal	MSAST-2020	Institute IMBIC	21-23 December, 2020
<b>Dr. Nilanjana Mahata</b>	Phase Space Analysis of Dilatonic Scalar Field Cosmological Model	MSAST 2020	Institute IMBIC, India	21-23 December, 2020

### Annual Report 2020-2021

<b>Dr. Santosh Biswas</b>	Effect of multiple delays on cannibalistic eco-epidemiological model with Beddington-DeAngelis functional response	International Web Conference on Emerging Areas of Mathematics and Mathematical Sciences	Calcutta Mathematical Society	12-14 December, 2020
<b>Dr. Santosh Biswas</b>	Effect of awareness program on Mycobacterium ulcerans infection in human- a model based theoretical study	International Conference MSAST 2020	Institute IMBIC, India	21-23 December, 2020

**6. Major Achievements of the Department during the year**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Prof. Bibhas C. Giri</b>	Got featured in Stanford University World Rankings of Top 2% Scientists 2020	Stanford University	USA
<b>Prof. Bibhas C. Giri</b>	IEOM Outstanding Professor Award 2020	IEOM (Industrial Engineering and Operations Management) Society International	USA
<b>Prof. Farook Rahman</b>	Included to the world's top 2% scientists, 2020 in the research field Nuclear & Particle Physics	Stanford University	USA

**8. Students Progression during the year:**

**A. Progression to Higher Studies**

<b>Number of students enrolled in higher education</b>	<b>Programmes graduated from</b>	<b>Programmes admitted to</b>	<b>Institutes admitted to</b>
2	B.Sc., Department. of Mathematics. Jadavpur University.	Integrated PhD	IISER, Mohali, IISC, Bangalore
2	B.Sc., Department. of Mathematics. Jadavpur University.	M.Sc, Data Science	Ramkrishna Mission, Belur
3	B.Sc., Department. of Mathematics. Jadavpur University.	M.Sc.	IIT, Gandhinagar, Gowahati, Dhanbad
2	B.Sc., Department. of Mathematics. Jadavpur University.	MBA	IIM, Ranchi, IISWB

## Annual Report 2020-2021

1	B.Sc., Department. of Mathematics.Jadavpur University.	Data Science	CMI
3	B.Sc., Department. of Mathematics.Jadavpur University.	MCA, M.Sc.	NIT, Trichy, Rourkela
2	B.Sc., Department. of Mathematics.Jadavpur University.	MCA	Jadavpur Univ.
1	B.Sc., Department. of Mathematics.Jadavpur University.	MA	TISS, Mumbai

### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	5
SET	1
GATE	4
GRE	1
State Government Services	4
NBHM	4

## PHYSICS

Phone:033-2457- 2448/2477

H.O.D : Prof. Sukhen Das

E-mail: hod.physics@jadavpuruniversity.in

### 1. Vision and Mission of the Department :

A. **Vision:** The Department is trying to establish a platform for promoting interests and passion for the study of physics and create knowledge through teaching and research in physics and relevant interdisciplinary areas. The Department seeks to create a scientific society which encourages logical thinking by providing greater understanding of the nature of physical science and its application in everyday life and produce technical expertise.

### B. **Mission:**

The journey of Physics Department of Jadavpur University has started since 1956 under the efficient leadership of renowned scientist Prof. Shyamadas Chatterjee and from that time the main focus of both teaching and research was in various contemporary topics of diverse fields in physics and interdisciplinary subjects. The outlines of the mission are as follows:

- To awaken the young minds and discover their talents both in theory and in practical physics through classroom and laboratory teaching, guiding research projects and organizing seminars and workshops.
- To enhance the understanding of physics from common life experiences.
- To create the ability of thinking critically.



## Annual Report 2020-2021

- Developing scientific reasoning with inquiry labs: There is an immediate need to transform the existing standalone lab courses, within the constraints of the existing education infrastructure, into more inquiry-based designs, with one of its primary goals dedicated to developing scientific reasoning skills.
- To upgrade the laboratory facilities to familiarize the students with modern equipment and to develop experimental skills required for day to day work and research.
- To create intellectual property through innovations, quality research publications and patents.
- To create state of the art research laboratories which will facilitate the researchers of JU as well as other nearby academic institutions.
- To carry out research through collaborative research projects with other reputed academic institutions of India and abroad.
- To bring externally sponsored funds in order to strengthen laboratory facilities and support doctoral students.
- To organize outreach activities to promote scientific culture.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
B. Sc., Physics (Honours)	3	1 <sup>st</sup> year	71
		2 <sup>nd</sup> year	79
		3 <sup>rd</sup> year	65
M. Sc., Physics (Day)	2	1 <sup>st</sup> year	45
		2 <sup>nd</sup> year	45
M. Sc., Physics (Evening)	3	1 <sup>st</sup> year	43
		2 <sup>nd</sup> year	37
		3 <sup>rd</sup> year	Gap Year
M. Sc., Electronics	2	1 <sup>st</sup> year	18
		2 <sup>nd</sup> year	18
Post M. Sc. Diploma in Medical Physics	1	1 <sup>st</sup> year	10
Ph.D.			31

### 3. Faculty Members in the Department:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
18	9	7	34

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

- Materials Science and Nanotechnology
- Theoretical Condensed Matter Physics
- X-Ray Crystallography
- Atomic and Molecular Physics
- Biophysics
- Environmental Radioactivity
- Theoretical Plasma Physics
- Relativity and Cosmology
- Nuclear and Particle Physics
- High Energy Physics
- Molecular dynamics

**Annual Report 2020-2021**

**B. Major Research Projects:**

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
Study on the Effect of Carbon Nanotubes and Nanoparticles on Organic Photodetector	Individual	<b>N. B. Manik</b>	RUSA 2.0	July 2019- June 2020
Tailoring of electrical and magnetic properties of magnetic nanoparticles embedded in reduced graphene oxide	Individual	<b>Ruma Ray</b>	Government of West Bengal, Science & Technology and Biotechnology Department.	12/03/2019 to 11/03/2022
Waste water remediation: novel use of piezocatalytic ceramic-polymer nanocomposites	Individual	<b>Sukhen Das</b>	SERB	3 years
Fabrication of highly reproducible SERS active substrates through controlled plasmonics and their applications in ultrasensitive chemical and biological sensing	Individual	<b>Joydeep Chowdhury</b>	CSIR, Govt. of India	3 years
Lab on chips for trace detections of arsenic, melamine, heavy ions and in one click diagnostic applications using SERS	Individual	<b>Joydeep Chowdhury</b>	DHESTBT, Govt. of West Bengal	3 years
Moving beyond the folds: Design of DNA origamis as breadboard mimicking scaffolds and their interactions with nanoparticles through SERS	Individual	<b>Joydeep Chowdhury</b>	DST-SERB, Govt. of India	3 years
Study on QGP and Its Properties Using Correlation and Fluctuation Phenomena in Ultra-relativistic Heavy Ion Collisions	Individual	<b>Mitali Mondal</b>	DHESTBT, W. B.	Three years (29.06.2018 Continuing )
Vacuum deposition of Fluorinated Zinc Phthalocyanine and Oligothiophene based plasmonic tandem solar cell	Individual	<b>Partha Pratim Ray</b>	SERB-DST	2017-2021
Stacking fault energy mediated deformation mechanisms in some	Individual	<b>Puspendu Sahu</b>	Department of Science and Technology	2020-2023

### Annual Report 2020-2021

twinning induced plasticity (TWIP) steels				
Quantitative analysis of noncovalent interactions of organic solids for photosensitive Schottky barrier diode behavior	Individual	<b>Saikat Kumar Seth</b>	SERB	27/11/2019 26/11/2022
Understanding the evolution of perpendicular magnetic anisotropy and domain structures in ferromagnetic multilayer thin films	Individual	<b>Bharati Tudu</b>	DST-SERB	4 years (March, 2017-2021)
Perpendicularly Polarized Spin Transport in Semiconductors: An Investigation using Electrical Spin Injection and Detection	Individual	<b>Bharati Tudu</b>	DST-SERB	October, 2018-2021
Synthesis of bismuth oxyhalides and its composites for enhanced photocatalytic activity: A little step towards a pollution free environment	Individual	<b>Subrata Sarkar</b>	DST-SERB	3 years
Study of zinc oxide thin films as gas sensor under high relative humidity	Individual	<b>Kaustuv Das</b>	DHESTBT, W. B.	3 years
Fabrication of Infrared Photo-detector based on 2D systems and Tuning the Detection Window by coupling with Nanostructures	Individual Joint collaboration	<b>P.I.: Achintya Singha (Bose Institute) Co-P.I.: Kaustuv Das</b>	SERB, DST, India	3 years

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Department
18	108

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

1. Mitali Mondal, Joyati Mondal, Somnath Kar, Argha Deb and Premomoy Ghosh, Forward-backward multiplicity and momentum correlations in pp collisions at LHC energies, *Physical Review D* 102, 014033 (2020)
2. Tilak Nayak, Debjit De, ParimalKarmakar, Argha Deb and Paltu Kumar Dhal, Microbial Communities of the Drinking Water with Gradient Radon Concentration Are Primarily Contributed by Radon and Heavy Metal Content, *Frontiers in Environmental Science* 9: 576400 (2021): DOI: 10.3389/fenvs.2021.576400

## Annual Report 2020-2021

3. Das, B. and Deb, A. (2021). Theoretical evaluation of calibration factor for CR-39 track detector for alpha radioactivity measurement in natural water. *Radiation Physics and Chemistry*. **185**: 109511. <https://doi.org/10.1016/j.radphyschem.2021.109511>.
4. Moumita Deb and Asim Kumar Ghosh, Exotic topological point and line nodes in the plaquette excitations of a frustrated Heisenberg antiferromagnet on the honeycomb lattice. *Journal of Physics: Condensed Matter* 32, 365601 (2020).
5. Moumita Deb and Asim Kumar Ghosh, Magnetic field induced topological nodal-lines in triplet excitations of frustrated antiferromagnet  $\text{CaV}_4\text{O}_9$ , *European Physical Journal B* 93, 145, (2020).
6. Samik Saha, Atanu Roy, Apurba Ray, Trisha Das, Mahasweta Nandi, Basudev Ghosh, Sachindranath Das, Effect of particle morphology on the electrochemical performance of hydrothermally synthesized  $\text{NiMn}_2\text{O}_4$ , *Electrochimica Acta* 353, 136515 (2020)
7. Chinmay Das, Swarniv Chandra, Basudev Ghosh, Amplitude modulation and soliton formation of an intense laser beam interacting with dense quantum plasma: Symbolic simulation analysis, *Contrib. Plasma Phys.* 60(8) 202000028 (2020)
8. Shatadru Chaudhuri, A. Roy Chowdhury, K. Roy Chowdhury and Basudev Ghosh, Cross Phase Incoherent Modulational Stability Due to Interacting Laser Pulses in a Magnetized Plasma, *International Journal of Advanced Applied Physics Research*, Vol 7, No 2. (2020)
9. Jit Sarkar, Swarniv Chandra and Basudev Ghosh, Resonant interactions between the fundamental and higher harmonic of positron acoustic waves in quantum plasma, *Zeitschrift für Naturforschung A*, 75(10) 819-824 (2020)
10. Jyotirmoy Goswami, Jit Sarkar, Swarniv Chandra and Basudev Ghosh, Amplitude-modulated electron-acoustic waves with bipolar ions and kappa-distributed positrons and warm electrons, *Pramana – J. Phys.* vol 95: Article Id 0054(2021)
11. S. Chandraa, J. Sarkar, C. Das and B. Ghosh, Self-interacting Stationary Formations in Plasmas under Externally Controlled Fields, *Plasma Physics Reports*, 47(3), pp. 306–317 (2021)
12. Samanta, Anwesha; Chowdhury, Trinath; Chattopadhyay Brajadulal; Chattopadhyay, Krishna. Studies the therapeutic efficacy of nanocurcumin against nicotine induced damage of blood cells. *International Journal of Pharmaceutical Research and Innovation*.14: 12 - 26 (2021)
13. Saheli Banerjee, Tuhin Kanti Biswas, Krishna Chattopadhyay, Brajadulal Chattopadhyay. An Approach to Screen Genotoxic Susceptible Diabetic Population of various Prakriti Groups for Personalized Disease Management. *Journal of Alternative and Complimentary Medicine*. 27(1): 1-8 (2020). [doi.org/10.1089/acm.2020.0269](https://doi.org/10.1089/acm.2020.0269)
14. Temperature-dependent site selection of boron doping in chemically derived graphene, Saikat Sarkar, Rajarshi Roy, Bikram Kumar Das and Kalyan Kumar Chattopadhyay, *Carbon*, 184, (2021), 253. IF. 9.59
15. Electrochemical Performance of 3D Network  $\text{CsPbBr}_3$  Perovskite Anodes for Li-Ion Batteries: Experimental Venture with Theoretical Expedition, T Paul, S Maiti, BK Chatterjee, P Bairi, BK Das, S Thakur and K.K. Chattopadhyay, *The Journal of Physical Chemistry C* 125 (2021), 16892-16902. IF. 4.12
16. Nanoporous nitrogen-doped graphitic carbon hollow spheres with enhanced electrochemical properties, Partha Bairi, Kausik Sardar, Madhupriya Samanta, Kausik Chanda and Kalyan Kumar Chattopadhyay, *Mater. Chem. Front.*, 2021,5, 7645-7653, IF. 6.48.
17. All-inorganic  $\text{CsPbBr}_3$  perovskite as potential electrode material for symmetric supercapacitor, S Thakur, T Paul, S Maiti, K.K Chattopadhyay, *Solid State Sciences*, 122 (2021), 106769. IF.3.05
18. Photo tuned electron field emission from vertically aligned  $\text{CH}_3\text{NH}_3\text{PbI}_3$  nanorods grown in AAO template, N Besra, S Maity, KK Chattopadhyay, *Journal of Physics and Chemistry of Solids*, (2021),110457 (in Press), [doi10.1016/j.jpcs.2021.110457](https://doi.org/10.1016/j.jpcs.2021.110457). IF. 3.99
19. Observation of polarization dependent excitonic luminescence in few-layered  $\text{WS}_2$  flakes, R Roy, S Das, N Mazumder, D Roy, K.K Chattopadhyay, *Chemical Physics Letters* 781, (2021) 139012. IF. 2.32
20.  $\text{SrTiO}_3$ :  $\text{Sm}^{3+}$ ,  $\text{Na}^+$ -co-doped orange-emitting nanophosphor for pc-WLEDs,

## Annual Report 2020-2021

- A Santra, N Chakraborty, K Panigrahi, KK Chattopadhyay, UK Ghorai, **Journal of Materials Science: Materials in Electronics**, (2021), 1-15, (In Press). doi.org/10.1007/s10854-021-06876-5, **IF. 2.47**
21. Hexagonal nickel selenide nanoflakes decorated carbon fabric: An efficient binder-free water loving electrode for electrochemical water splitting, S Ghosh, M Samanta, B Das, S Maity, P Howli, S Sarkar and K.K. Chattopadhyay, **Solid State Sciences** **116**, (2021) 106613. **IF. 3.05**
  22. Synthesis of Silicon Nanowire and Crystalline Carbon Quantum Dots heterostructure and Study of Photo response and Photoluminescence Property, Sourav Sarkar; Unmesha Ray; Dipayan Roy; Diptonil Banerjee; K.K. Chattopadhyay, **Materials Letters**, (2021), 303, 130493. **IF. 3.42**
  23. Calcination temperature dependent dielectric properties of nanocrystalline BaSnO<sub>3</sub>, Suvra Pal, Nirmalya S. Das, Brahami Das, Subhadipta Mukhopadhyay and Kalyan K. Chattopadhyay, **ECS Journal of Solid State Science and Technology**, (2021), 10, 071018. **IF. 2.07**
  24. Photocatalytic and sonocatalytic dye degradation by sulfur vacancy rich ZnS nanopowder, Shrabani Ghosh, Madhupriya Samanta, Dipayan Sen, Samrat Sarkar, Sourav Sarkar, K. K. Chattopadhyay, **Journal of Nanoparticle Research** (2021) **23**, 160. **IF. 2.13**
  25. Field-enhanced polarization in polytype ferric oxides: confronting anisotropy in dielectric ellipsoid dispersion, Souvik Bhattacharjee, Anibrata Banerjee, and Kalyan Kumar Chattopadhyay, **Journal of Physics D: Applied Physics** (2021), **54**, 29, 295301. **IF. 3.2**
  26. Boron Vacancy: A strategy to boost the Oxygen Reduction Reaction of hexagonal boron nitride nanosheet in hBN-MoS<sub>2</sub> heterostructure, Dipayan Roy, Karamjyoti Panigrahi, Bikram K. Das, Uday K. Ghorui, Souvik Bhattacharjee, Madhupriya Samanta, Sourav Sarkar and Kalyan K. Chattopadhyay, **Nanoscale Advances**, (2021), **3**, 4739. **IF. 4.55**
  27. Generation of stable thermal gradient by solar energy harvesting in porous cobalt oxide based nanofluid, Dipanwita Mitra, Kalyan Kumar Chattopadhyay and Paramita Chattopadhyay, **Sustainable Energy Technologies and Assessments**, (2021), **47**, 101390. **IF. 5.35**
  28. Hierarchical Assembly of MnO<sub>2</sub> Nanosheet on CuCo<sub>2</sub>O<sub>4</sub> Nanoflake over Fabric Scaffold for Symmetric Supercapacitor, Kausik Chanda, Soumen Maiti, Samrat Sarkar, Partha Bairi, Subhasish Thakur, Kausik Sardar, Nripen Besra, Nirmalya Sankar Das, and Kalyan Kumar Chattopadhyay, **ACS Applied Nanomaterials**, (2021) **4**, 1420. **IF. 3.93**
  29. Amalgamation of MnWO<sub>4</sub> nanorods with amorphous carbon nanotubes for highly stabilized energy efficient supercapacitor electrode, Kausik Sardar, Subhasish Thakur, Soumen Maiti, Nripen Besra, Partha Bairi, Kausik Chanda, Gautam Majumdar and Kalyan Kumar Chattopadhyay, **Dalton Transactions**, (2021), **50**, 5327. **IF. 4.17**
  30. Hierarchical nickel sulphide microstructures for controlled water disinfection and cold cathode emission, Rimpa Khan, Nirmalya Sankar Das, Biswajit Das, Brahami Das and Kalyan Kumar Chattopadhyay, **Journal of Photochemistry & Photobiology, A: Chemistry**, (2021), **412**, 113212. **IF. 4.29**
  31. NIR photodetector based on p-silicon nanowires/n-cadmium sulfide nanoscale junctions, Ankita Chandra, Supratick Giri, Biswajit Das, Shrabani Ghosh, Sourav Sarkar, K.K. Chattopadhyay, **Applied Surface Science**, (2021) **548**, 149256. **IF. 6.7**
  32. Morphology tuning of bismuth oxychloride nano- crystals by citric acid variation: application in visible light-assisted dye degradation and hydrogen evolution by electrochemical method, Ratna Sarkar, Dipayan Roy, Dimitra Das, Subrata Sarkar and Kalyan K. Chattopadhyay, **International Journal of Hydrogen Energy**, (2021), **46**, 16299. **IF. 5.81**
  33. Experimental observation of valence band dispersion and increased hole conductivity in CuCr<sub>(1-x)</sub>Li<sub>x</sub>O<sub>(2-y)</sub>S<sub>y</sub>, Prasanta Mandal, Nilesh Mazumder, Subhajit Saha, Uttam Kumar Ghorai, Rajarshi Roy, Gopes Chandra Das, Kalyan Kumar Chattopadhyay, **Current Applied Physics** (2021), **25**, 90-96. **IF. 2.28**
  34. Copper (II) phthalocyanine (CuPc) based optoelectronic memory device with multilevel resistive switching for neuromorphic application, Biswajit Das, Madhupriya Samanta, Pranab Sarkar, Uttam K. Ghorai, Abhijit Mallik and Kalyan K. Chattopadhyay, **Advanced Electronic Materials**, (2021), **7**, 2001079. **IF. 6.59**

## Annual Report 2020-2021

35. New Class of Trimetallic Oxide Hierarchical Mesoporous Array on Woven Fabric: Electrode for high-Performance and Stable battery type Ultracapacitor, Subhasish Thakur, Soumen Maiti, Kausik Sardar, Kausik Chanda, Nripen Besra, Partha Bairi, Karamjyoti Panigrahi, Tufan Paul and Kalyan Kumar Chattopadhyay, **Journal of Energy Storage**, (2021), **35**, 102249. **IF. 3.76**
36. Enhanced electron emission from ternary solid solution-MWCNT hybrid with theoretical validation, Shrabani Ghosh, Supratim Maity, Ankita Chandra, Bikram Kumar Das, Nripen Besra, Samrat Sarkar, Sourav Sarkar and Kalyan Kumar Chattopadhyay, **Materials Science in Semiconductor Processing**, (2021), **127**, 105674. **IF. 3.08**
37.  $\text{CH}_3\text{NH}_3\text{PbI}_3$  as a radio-frequency decoupling capacitor: Interplay between Maxwell-Wagner polarization and pseudo inductive response, Nripen Besra, Kausik Sardar, Nilesh Mazumder, Souvik Bhattacharjee, Anjan Das, Bikram Das, Saikat Sarkar, Kalyan Kumar Chattopadhyay, **Journal of Physics D: Applied Physics**, (2021), **54**, 175105. **IF. 3.2**
38. Incorporation of  $\text{V}_2\text{O}_5$  nanorods into perovskite photodetectors as an alternative approach to enhance device performance: a step towards stability against ambient water species, Nripen Besra, Kausik Sardar, Soumen Maiti, Pranab Kumar Sarkar, Tufan Paul, Subhasish Thakur, Gautam Majumdar and Kalyan Kumar Chattopadhyay, **Dalton Transactions**, (2020) **44**, 15788. **IF. 4.17**
39. Role of various transport layer and electrode materials in enhancing performance of stable environment-friendly  $\text{Cs}_2\text{TiBr}_6$  solar cell, Madhupriya Samanta, SkIjaj Ahmed, Kalyan K. Chattopadhyay and Chayanika Bose, **Optik** (2020) **217**, 164805. **IF. 2.18**
40. Multilevel programming and light-assisted resistive switching in halide tunable all-inorganic perovskite cube for flexible memory devices, Tufan Paul, Pranab Kumar Sarkar, Soumen Maiti, and Kalyan Kumar Chattopadhyay, **ACS Applied Electronic Materials** (2020), **2**, 3667. **IF. 3.31**
41. Luminescence properties of nano and bulk  $\text{ZnWO}_4:\text{Eu}^{3+}$  Phosphor for solid state lighting applications, Rituparna Chatterjee, Gopes Das and Kalyan Kumar Chattopadhyay, **Materials Research Express**, **7**, 074002, 2020. **IF. 1.91**
42. V doped  $\text{BaSnO}_3$  nanocubes as a Field emitting material: Experimental and theoretical investigation; Suvra Pal, Nirmalya Sankar Das, Brahmi Das, Bikram Kumar Das, Subhadipta Mukhopadhyay and Kalyan Kumar Chattopadhyay; **Applied surface science** (2020), **530**, 147102. **IF. 6.7**
43. Shape-Shifting via Salt Crystallization: Conversion of Nanostructured Polymer into Site-Selective Nitrogen-Doped Carbon Sheet with Enhanced Supercapacitive Performance; Partha Bairi, Kausik Sardar, Kausik Chanda, Madhupriya Samanta, Subhasish Thakur, Karamjyoti Panigrahi, Saikat Sarkar, Tufan Paul and Kalyan Kumar Chattopadhyay; **ACS Applied Energy Materials** (2020), **3**, 6, 5984-5992. **IF. 4.47**
44. Luminescence properties of nano and bulk  $\text{ZnWO}_4:\text{Eu}^{3+}$  Phosphor for solid state lighting applications; Rituparna Chatterjee, Gopes Das and Kalyan Kumar Chattopadhyay; **Materials Research Express** (2020) **7**, 074002. **IF. 4.47**
45. Yellow emitting  $\text{Fe}_3\text{O}_4/\text{ZnS}$  hybrid: a probe for in vitro dermatoglyphics and anti-counterfeiting applications; Antika Das, Karamjyoti Panigrahi, Subhajit Saha, Bikram Kumar Das, Nirmalya Das, Saikat Sarkar, Rituparna Chatterjee and K.K. Chattopadhyay; **Materials Research Bulletin** (2020), **131**, 110966. **IF. 4.01**
46. Size-modulation of functionalized  $\text{Fe}_3\text{O}_4$ : Nanoscopic customization to devise resolute piezoelectric nanocomposites; Souvik Bhattacharjee, Nilesh Mazumder, Suvankar Mondal, Karamjyoti Panigrahi, Anibrata Banerjee, Dimitra Das, Saikat Sarkar, Dipayan Roy, and Kalyan Kumar Chattopadhyay; **Dalton Transactions**, (2020), **49**, 23, 7872-7890. **IF. 4.17**
47. Strain-induced partial phase transition in  $\text{TiO}_2$  nanoparticles manifesting frequency dispersive pseudo-inductive switching of capacitance; Dipanwita Mitra, Souvik Bhattacharjee, Nilesh Mazumder, Bikram Kumar Das, Paramita Chattopadhyay, and Kalyan Kumar Chattopadhyay; **Ceramics International**, (2020) **46**, 12, 20437-20447. **IF. 4.52**
48. Site specific nitrogen incorporation in reduced graphene oxide using imidazole as a novel reducing agent for efficient oxygen reduction reaction and improved supercapacitive performance; Dipayan Roy, Kaustav Bhattacharjee, Karamjyoti Panigrahi, Bikram Kumar Das, Kaushik Sardar, Sourav Sarkar and Kalyan Kumar Chattopadhyay; **Carbon** (2020), **166**, 361-373. **IF. 9.59**

## Annual Report 2020-2021

49. Human Motion Interactive Mechanical Energy Harvester Based on All Inorganic Perovskite-PVDF Nano Energy; Suvankar Mondal, Tufan Paul, Soumen Maiti, Bikram Kumar Das and Kalyan Kumar Chattopadhyay; **Nano Energy (2020), 74, 104870. IF. 17.88**
50. MoSe<sub>2</sub>-amorphous CNT hierarchical hybrid core-shell structure for efficient hydrogen evolution reaction; Supratim Maity, Biswajit Das, Madhupriya Samanta, Bikram Das, Shrabani Ghosh and K.K. Chattopadhyay; **ACS Applied Energy Materials (2020), 3, 5, 5067-5076. IF. 4.47**
51. Dielectric and piezoelectric augmentation in self-poled magnetic Fe<sub>3</sub>O<sub>4</sub>/ Poly (vinylidene fluoride) composite nanogenerators; Souvik Bhattacharjee, Suvankar Mondal, Anibrata Banerjee and K. K. Chattopadhyay; **Materials Research Express (2020), 7, 4, 044001. IF. 4.47**
52. Novel Ag<sub>2</sub>O-Ga<sub>2</sub>O<sub>3</sub> type II p-n heterojunction as an efficient water cleanser for green cleaning technology; Brahami Das, Biswajit Das, Nirmalya Sankar Das, Suvra Pal, Bikram Kr Das, Subrata Sarkar and K.K. Chattopadhyay; **Applied Surface Science (2020), 515, 145958. IF. 6.7**
53. Ambient Processed CsPbX<sub>3</sub> Perovskite Cubes for Photocatalysis; Sayantani Das, Tufan Paul, Soumen Maity and K.K. Chattopadhyay; **Materials Letters (2020), 267, 127501. IF. 3.42**
54. 3D network of V<sub>2</sub>O<sub>5</sub> for flexible symmetric supercapacitor; Karamjyoti Panigrahi, Promita Howli and Kalyan Kumar Chattopadhyay; **Electrochimica Acta (2020), 337, 135701. IF. 6.21**
55. Size and phase dependent thermal conductivity of TiO<sub>2</sub>-water nanofluid with theoretical insight; Dipanwita Mitra, Promita Howli, Bikram Kumar Das, Nirmalya Sankar Das, Paramita Chattopadhyay and K. K. Chattopadhyay; **Journal of Molecular Liquids (2020), 302, 112499. IF. 6.16**
56. Hollow Micro-spherical Bismuth Oxy-chloride for Superior Visible Light Induced Dye-sensitized Photocatalytic Activity and its Theoretical Insight; Ratna Sarkar, Dimitra Das, Bikram Kumar Das, Anuradha Mitra, Nirmalya Sankar Das, Subrata Sarkar and K. K. Chattopadhyay; **Materials research Bulletin (2020), 125, 110778. IF. 4.01**
57. Negative capacitance switching in size-modulated Fe<sub>3</sub>O<sub>4</sub> nanoparticles with spontaneous non-stoichiometry: confronting its generalized origin in non-ferroelectric materials; Souvik Bhattacharjee, Anibrata Banerjee, Nilesh Mazumder, Kausik Chanda, Saikat Sarkar, Kalyan Kumar Chattopadhyay; **Nanoscale (2020), 12, 3, 1528-1540. IF. 7.79**
58. P. Banerjee, J. Das, Gate Work Function Engineered Trigate MOSFET with a Dual-Material Bottom Gate for Biosensing Applications: A Dielectric-Modulation based Approach, *Silicon* <https://doi.org/10.1007/s12633-020-00823-5>(2020)
59. T. Sarkar, N. Mukherjee, J. Das, Studies on Dielectric Constant and AC Conductivity of Nano Porous Silicon Layer for Efficient Glucose Sensing, *Journal of Materials Science: Materials in Electronics*, 31(21) pp 18996-19002, <https://doi.org/10.1007/s10854-020-04436-x> (2020)
60. Somsubhra Saha, Manash Ghosh, Subhendu Chandra, Joydeep Chowdhury\*, Decoding the topographical features of more realistic SERS active substrates in presence of the probe molecules from statistical considerations: An in-depth study bridging Microscopy with Spectroscopy, *Colloids Surf, A Physicochem Eng Asp*, 628 (2021)
61. Saumen Saha, Snehasish Bhattacharjee and Joydeep Chowdhury\*, Exploring the binding interactions of janus green blue with serum albumins from spectroscopic and calorimetric studies aided by in silico calculations, *J. Biomol. Struct. Dyn.*, 2021.
62. Sumit Kumar Das, Tara Shankar Bhattacharya, Manash Ghosh and Joydeep Chowdhury\*, Probing blood plasma samples for the detection of diabetes using SERS aided by PCA and LDA multivariate data analyses, *New J. Chem.*, 45, 2670-2682, 2021.
63. Saumen Saha and Joydeep Chowdhury\*, Understanding the structure and conformation of bovine hemoglobin in presence of the drug hydroxyurea: multi-spectroscopic studies supported by docking and molecular dynamics simulation, *J. Biomol. Struct. Dyn.*, 39:10, 3533-3547, 2021.
64. Sumit Kumar Das, Tara Shankar Bhattacharya and Joydeep Chowdhury\*, Deciphering the near-field response with the far-field wavelength-scanned SERS spectra of 4-mercaptopyridine adsorbed on gold nanocolloidal particles entrapped in Langmuir Reverse Schaefer film of 5CB liquid crystal molecules, *Phys. Chem. Chem. Phys.*, 22, 8719-8729, 2020.

## Annual Report 2020-2021

65. Sumit Kumar Das, Somsubhra Saha, Manash Ghosh, Joydeep Chowdhury\*, How SERS responses of probe molecules depend on topographies of the substrates? A vis-à-vis exploration, *Vib. Spectrosc.*, 107, 2020.
66. Saumen Saha, Joydeep Chowdhury\*, Sustained and improved enzymatic activity of trypsin immobilized in the Langmuir Blodgett film of DPPC: A rapid enzyme sensor for the detection of Azocasein, *Mater. Chem. Phys.*, 243, 2020.
67. Saumen Saha, Achinta Sannigrahi, Krishnananda Chattopadhyay, Joydeep Chowdhury\*, Interaction of KMP-11 and its mutants with ionic liquid choline dihydrogen phosphate: Multispectroscopic studies aided by docking and molecular dynamics simulations, *J. Mol. Liq.*, 301, 2020.
68. Swapan Bhunia, Pallab Kumar Das and N. B. Manik, "Effect of Dye Concentration on the band gap of PVA turmeric composite film", *Journal of Indian Chemical Society*, vol. 97, page no. 2937-2942, (2020)
69. Swapan Bhunia, Pallab Kumar Das, Sarmistha Basu and N. B. Manik, "Effect of titanium dioxide on solid state turmeric dye thin film", *Journal of Indian Chemical Society*, vol. 97, page no. 2943-2947, (2020)
70. Sudipta Sen, N. B. Manik, "Effect of Different Concentrations of Titanium Di Oxide Nanoparticles on the Potential Barrier of Organic Device", *European Journal of Engineering and Formal Sciences*, vol. 4, page no 44-52, (2020)
71. Sudipta Sen, N. B. Manik, "Effect of Different Sized Multi Walled Carbon Nanotubes on the Barrier Potential and Trap Concentration of Malachite Green Dye Based Organic Device", *Advances in Materials Science*, vol. 20, page no. 16-26, (2020)
72. Pallab Kumar Das, N. B. Manik, "Tuning of series resistance by reducing the trap energy of methyl red dye-based organic devices in the presence of ZnO nanoparticles", *International Journal of Renewable Energy Technology*, vol. 12, page no. 118 – 129, (2021)
73. Sudipta Sen, N. B. Manik, "Modification of Barrier Height and Depletion Layer Width of Methyl Red (MR) Dye - Based Organic Device in Presence of Single - Walled Carbon Nanotubes (SWCNT)", *Indian Journal of Physics*, (DOI: 10.1007/s12648-020-01972-4) (2021)
74. Sudipta Sen, Pallab Kumar Das, N. B. Manik, "Study on Effect of Single Walled Carbon Nanotubes on Junction Properties of Safranin – T Dye Based Organic Device", *Journal of Physics Communications*, vol. 5, page no. 1-9, (2021)
75. Pallab Kumar Das, Sudipta Sen, N. B. Manik, "Study on the Series Resistance of Crystal Violet Dye - Based Organic Photovoltaic Device in Presence of Single Walled Carbon Nanotubes", *Indian Journal of Physics*, (DOI: 10.1007/s12648-021-02051-y) (2021)
76. Arnab Kanti Karan, N. B. Manik, "Estimation of Richardson Constant for Natural Organic dye Based Cells using Orange-lemon and Apple-green", *International Journal in Innovative Research in Physics*, vol. 2, page no. 62-67, (2021)
77. A Biswas, S Sil, A Dey, J Datta, D Das, PP Ray, Investigation of conduction kinetics in Al/CuInSe<sub>2</sub> Schottky device utilizing impedance spectroscopy (IS) measurement and study of its photosensingbehaviour, *Journal of Physics and Chemistry of Solids*, DOI: 10.1016/j.jpics.2020.109878 (2021)
78. A Banerjee, D Das, PP Ray, S Banerjee, S Chattopadhyay, Phenoxo-bridged dinuclear mixed valence cobalt (iii/ii) complexes with reduced Schiff base ligands: synthesis, characterization, band gap measurements and fabrication of ...", *Dalton Transactions*, DOI: 10.1039/D0DT03707A (2021)
79. S Halder, A Dey, S Sil, PP Ray, Study of AC conductivity and dielectric behaviour of hydrothermally synthesised molybdenum disulphide", *Journal of Materials Science: Materials in Electronics*, DOI: 0.1007/s10854-020-04749-x (2021)
80. P Das, B Pal, J Datta, M Das, S Sil, PP Ray, Improved charge transport properties of graphene incorporated tin oxide based Schottky diode over pure one", *Journal of Physics and Chemistry of Solids*, DOI: 10.1016/j.jpics.2020.109706 (2021)



## Annual Report 2020-2021

81. D Sinha, S Sil, PP Ray, KK Rajak, Anthracene-Based Fluorophore and Its Re (I) Complexes: Investigation of Electrical Properties and Schottky Diode Behavior”, *ACS Omega*, DOI: 10.1021/acsomega.0c04403 (2020)
82. S Majumdar, A Dey, R Sahu, S Dhibar, PP Ray, B Dey, Cd-Based Metallohydrogel Composites with Graphene Oxide, MoS<sub>2</sub>, MoSe<sub>2</sub>, and WS<sub>2</sub> for Semiconducting Schottky Barrier Diodes”, *ACS Applied Nano Materials*, DOI: 10.1021/acsnm.0c02215 (2020)
83. S Shinde, P Majumdar, S Sil, M Löffler, A Banerjee, B Rellinghaus, S Dass, P P Ray, S. Patra, Energy-Inexpensive Galvanic Deposition of BiOI on Electrodes and Its Conversion to 3D Porous BiVO<sub>4</sub>-Based Photoanode”, *The Journal of Physical Chemistry C*, DOI: 10.1021/acs.jpcc.0c06059 (2020)
84. P Ghorai, A Dey, P Brandão, S Benmansour, CJ GómezGarcía, P P Ray, A Saha, Multifunctional Ni (II)-Based Metamagnetic Coordination Polymers for Electronic Device Fabrication”, *Inorganic Chemistry*, DOI: 10.1021/acs.inorgchem.0c00389 (2020)
85. S Sil, H Luitel, J Dhar, M Chakrabarti, PP Ray, B Bandyopadhyay, D. Sanyal, Defect induced room temperature ferromagnetism in methylammonium lead iodide perovskite”, *Physics Letters A*, DOI: 10.1016/j.physleta.2020.126278 (2020)
86. K Naskar, A Dey, S Maity, PP Ray, P Ghosh, C Sinha, BiporousCd(II) Coordination Polymer via in Situ Disulfide Bond Formation: Self-Healing and Application to Photosensitive Optoelectronic Device, *Inorganic Chemistry*, DOI: 10.1021/acs.inorgchem.0c00163 (2020)
87. B Bandyopadhyay, H Luitel, S Sil, J Dhar, M Chakrabarti, P Nath, PP Ray, D Sanyal, NMR study of defect-induced magnetism in methylammonium lead iodide perovskite, *Physical Review B*, DOI: 10.1103/PhysRevB.101.094417 (2020)
88. S Dhibar, A Dey, S Majumdar, A Dey, PP Ray, B Dey, Organic-Acid-Mediated Luminescent Supramolecular Tb (III)-metallogel Applied in an Efficient Photosensitive Electronic Device with Excellent Charge Transport Properties, *Industrial & Engineering Chemistry Research*, DOI: 10.1021/acs.iecr.9b06032 (2020)
89. S Dhibar, A Dey, D Ghosh, S Majumdar, A Dey, PP Ray, B Dey, Triethylenetetramine-Based Semiconducting Fe (III) Metallogel: Effective Catalyst for Aryl–S Coupling, *ACS Omega*, DOI: 10.1021/acsomega.9b03194 (2020)
90. L Kumar, J Datta, PP Ray, TK Mandal, Composition dependent 3C and 6H perovskites, A<sub>3</sub>MTiSbO<sub>9</sub> (A= Sr, Ba; M= Mn, Co): Structural, magnetic and dielectric properties, *Journal of Solid State Chemistry*, DOI: 10.1016/j.jssc.2019.121116 (2020)
91. B Dutta, A Hazra, A Dey, C Sinha, PP Ray, P Banerjee, MH Mir, Construction of a Succinate-Bridged Cd (II)-Based Two-Dimensional Coordination Polymer for Efficient Optoelectronic Device Fabrication and Explosive Sensing Application, *Crystal Growth & Design*, DOI: 10.1021/acs.cgd.9b01181 (2020)
92. KS Das, B Pal, S Saha, S Akhtar, A De, P P Ray, R Mondal, Utilization of counter anions for charge transportation in the electrical device fabrication of Zn (ii) metal–organic frameworks, *Dalton Transactions*, DOI: 10.1039/D0DT02589E (2020)
93. S Islam, P Das, S Maiti, S Khan, S Maity, P Ghosh, AD Jana, PP Ray, M H Mir, Electrically conductive Cu (II)-based 1D coordination polymer with theoretical insight, *Dalton Transactions*, DOI: 10.1039/D0DT03098H (2020)
94. S Islam, B Pal, S Khan, S Maity, S Naaz, P Ghosh, PP Ray, MH Mir, Fabrication of Cu (II) based halobenzoate appended ladder polymers with efficient charge transport properties, *CrystEngComm*, DOI: 10.1039/D0CE00831A (2020)
95. Tanmoy Basak, Dhananjay Das, Partha Pratim Ray\*, Snehasis Banerjee and Shouvik Chattopadhyay, Synthesis, characterization, selfassembly and non-ohmic Schottky barrier diode behaviors of two iron(III) based semiconductors with theoretical insight, *CrystEngComm*, DOI: 10.1039/D0CE00223B (2020)
96. B. D. Biswas, J. Datta, M. Dutta Purkayastha, D. Das, P. P. Ray, A. Dutta, T. Pal Majumder, Electrical and photocatalytic properties of composites of manganese and titanium oxides, *Surfaces and Interfaces*, DOI: 10.1016/j.surfin.2020.100606 (2020)

## Annual Report 2020-2021

97. Samim Khan, Soumi Halder, Arka Dey, Basudeb Dutta, Partha Pratim Ray, Shouvik Chattopadhyay, Synthesis of an electrically conductive square planar copper(ii) complex and its utilization in the fabrication of a photosensitive Schottky diode device and DFT study, *New Journal of Chemistry*, DOI: 10.1039/D0NJ02162H (2020)
98. Provat. Ghorai, Arka Dey, Paula Brandão, Samia Benmansour, Carlos J. Gómez García\*, Partha Pratim Ray\*, Amrita Saha, Multifunctional Ni(II)-Based Metamagnetic Coordination Polymers for Electronic Device Fabrication, *Inorganic Chemistry*, DOI: 10.1021/acs.inorgchem.0c00389 (2020)
99. M. Dutta Purkayastha, J. Datta, P. P. Ray, Nisha Singh, G. K. Darbha, S. Denrah, M. Sarker, T. P. Majumder, D. Ghosh, Modelling the photocatalytic behaviour of p-n nickel-titanium oxide nanocomposite, *Chemical Engineering Research and Design* DOI: 10.1016/j.cherd.2020.06.027 (2020)
100. Bandyopadhyay, Bilwadal; Luitel, Homnath; Sil, Sayantan; Dhar, Joydeep; Chakrabarti, Mahuya; Nath, Palash; Ray, Partha P; Sanyal, Dirtha, NMR study of defect-induced magnetism in methylammonium lead iodide perovskite, *Physical Review B* 101, 94417 (2020)
101. Sil, Sayantan; Jana, Rajkumar; Biswas, Animesh; Das, Dhananjay; Dey, Arka; Datta, Joydeep; Sanyal, Dirtha; Ray, Partha Pratim, Elucidation of Inhomogeneous Heterojunction Performance of Al/Cu<sub>5</sub>FeS<sub>4</sub> Schottky Diode With a Gaussian Distribution of Barrier Heights, *IEEE Transactions on Electron Devices* 67, 2082 (2020)
102. Sil, Sayantan; Luitel, Homnath; Dhar, Joydeep; Chakrabarti, Mahuya; Ray, Partha Pratim; Bandyopadhyay, Bilwadal; Sanyal, Dirtha, Defect induced room temperature ferromagnetism in methylammonium lead iodide perovskite, *Physics Letters A* 384, 126278 (2020)
103. Dhibar, Subhendu; Dey, Arka; Majumdar, Santanu; Dey, Amiya; Ray, Partha Pratim; Dey, Biswajit, Organic-Acid-Mediated Luminescent Supramolecular Tb (III)-metallogel Applied in an Efficient Photosensitive Electronic Device with Excellent Charge Transport Properties, *Industrial & Engineering Chemistry Research* 59, 5466 (2020)
104. Tanmoy Singha, Debashis Mallick, Utsav Chakraborty, Pradip Maiti, Rajkumar Jana, Chittaranjan Sinha, Partha Pratim Ray, Pabitra Kumar Paul\*, Development of a Schottky barrier diode using molecular network of 1-alkyl-2-(arylo)imidazole prepared by Langmuir–Blodgett technique, *J. Physics and Chemistry of Solids*, 149, 109778 (2021)
105. Sukdev Dolai, Pradip Maiti, Arup Ghorai, Ritamay Bhunia, Pabitra Kumar Paul\*, and Dibyendu Ghosh, Exfoliated Molybdenum Disulfide-Wrapped CdS Nanoparticles as a Nano-Heterojunction for Photo-Electrochemical Water Splitting, *ACS Appl. Mater. Interfaces* 13(1), 438 -448 (2021)
106. Pabitra Kumar Paul, Pradip Maiti, Spectrofluorometric assay using gold nanoparticles and cationic dye Rhodamine B for selective and sensitive detection of L-Cysteine in aqueous environment, *The Open Access Journal of Science and Technology*, S (1), 13-16 (2020)
107. Animes Halder, Achinta Sannigrahi, Nayan De, Krishnananda Chattopadhyay, Sanat Karmakar, Kinoplastid membrane protein 11 induces pores in anionic phospholipid membranes: Effect of cholesterol, *Langmuir* 36, 13, 3522-3530(2020)
108. Achinta Sannigrahi, Junaid, Jibrán Jawed, S. Majumdar, Syamal Roy, Sanat Karmakar, Krishnananda Chattopadhyay, Protein induced membrane phase transition facilitates leishmania infection, *BiorXiv*doi: <https://doi.org/10.1101/2020.03.08.982454>
109. Amrita Basu, Prasanta Karmakar and Sanat Karmakar, Supported Planar Single and Multiple Bilayer Formation by DOPC Vesicle Rupture on Mica Substrate: A Mechanism as Revealed by Atomic Force Microscopy Study, *J. Membrane. Biol* 253, 205–219 (2020)
110. Subir Kumar Patla, Anupa Roy Choudhury, Ruma Ray, Shantanu Das, Sanat Karmakar, Plasticizer ethylene carbonate facilitates new ion coordination site in blend polymer electrolyte: Dielectric relaxation through two-parameter Mittag-Leffler function, *AIP Adv* 10(11), 115008(2020)
111. Achinta Sannigrahi, Sourav Chowdhury, Bidisha Das, Amrita Banerjee, Animesh Halder, Athi N. Naganathan, Sanat Karmakar, Krishnananda Chattopadhyay, The metal cofactor zinc and interacting membranes modulate SOD1 conformation-aggregation landscape in an in vitro ALS Model, *eLife* 10, e61453 (2021)

## Annual Report 2020-2021

112. S.R. Das, S. Shyamal, T. Sahu, J.I. Kömi, P.C. Chakraborti, D.A. Porter, L.P. Karjalainen and P. Sahu, On the mechanism of cross-slip induced dislocation substructure formation in an high-Mn steel, *Materialia*, 15., 101042. 2021.
113. S.R. Das, S. Shyamal, S.K. Shee, J.I. Kömi and P. Sahu, X-ray line profile analysis of the deformation microstructure in a medium-grained Fe-Mn-Al-C austenitic steel, *Materials Characterization*, 172., 110833., 2021.
114. S. Shyamal, S.R. Das, M. Jaskari, D.A. Porter, L.P. Karjalainen and P. Sahu, Graded deformation in an Fe-Mn-Al-C steel under bending fatigue, *Materials Letters*, 285., 129002., 2021.
115. S. Shyamal, M.G. Farahani, T. Allam, A.S. Hamada, C. Haase, J.I. Kömi, P.C. Chakraborti and P. Sahu, Activation of a hybrid twinning mechanism in a Cr-Ni-Si-VN medium manganese austenitic steel containing precipitates, *Scripta Materialia.*, 192., 83-88., 2021.
116. T. Riaz, S.R. Das, T. Sahu, P.C. Chakraborti and P. Sahu, Dislocation substructures in tensile deformed Fe–Mn–Al–C steel, *Materials Letters*, 282., 128691., 2021.
117. Payal Sengupta, Priyabrata Sadhukhan, Apurba Ray, Ruma Ray, Satyaranjan Bhattacharyya, and Sachindranath Das, Temperature and frequency dependent dielectric response of  $C_3H_7NH_3PbI_3$ : A new hybrid perovskite, *J App Phys*, 127, 204103., 2020.
118. Neepamala Giri, Archita Mondal, Sanchari Sarkar, Ruma Ray, Doping-induced dielectric and transport properties of  $Ni_{1-x}Zn_xO$ , *J Mat Sc: Mat Elec*, 31, 12628-12637, 2020.
119. Simantini Majumdar, Ruma Ray, Pintu Sen, Anomalous intra diffusive behavior of chitosan/PVDF solid polymer electrolytes and the enhancement of effective specific capacitance with nanostructured spinel  $MnCoFeO_4$  electrode in solid-state supercapacitors, *Electrochimica Acta*, 385, 138295, DOI: 10.1016/j.electacta.2021.138295 (2021)
120. S Majumdar, R Ray, Ionic conduction and charge carrier relaxation in chitosan acetate based solid biopolymer electrolyte embedded with  $LiClO_4$ , *Journal of Polymer Research* 28 (5), 1-14 (2021)
121. S. Roy, S. Bardhan, D. Mondal, I. Saha, J. Roy, S. Das, D. K. Chanda, P. Karmakar, S. Das, Polymeric carbon dot/boehmite nanocomposite made portable sensing device (Kavach) for noninvasive and selective detection of Cr(VI) in wastewater and living cells, *Sensors and Actuators B: Chemical*, 348, 130662 (2021)
122. S. Bhattacharjee, M. Bardhan, S. Ghosh, A. Banerjee, K. Pal, A. Guha, D. Mondal, R. Basu, S. Das, S. K. Sinha, An in-vivo interpretation for validating the ameliorative efficacy of green synthesized  $MnO_2$  nanoconjugate using Carica Papaya (Papaya) leaf extract against acute hepatic damage, *Journal of Drug Delivery Science and Technology*, 66, 102774 (2021)
123. S Ghosh, S Roy, S Bardhan, N Khatua, B Bhowal, DK Chanda, S Das, Effect of Size Fractionation on Purity, Thermal Stability and Electrical Properties of Natural Hematite, *Journal of Electronic Materials* 50 (7), 3836-3845 (2021)
124. Md. M. Saikh, N. A. Hoque, P. Biswas, W. Rahman, N. Das, S. Das, P. Thakur, Self-Polarized  $ZrO_2$ /Poly(vinylidene fluoride-co-hexafluoropropylene) Nanocomposite Based Piezoelectric Nanogenerator and Single-Electrode Triboelectric Nanogenerator for Sustainable Energy Harvesting from Human Movements, *Physica Status Solidi a*, 218(9), 2000695 (2021)
125. B Ghosh, S Sarkar, N Sepay, K Das, S Das, SG Dastidar, Factors for COVID-19 infection that govern the severity of illness, *Sci Medicine Journal* 3 (2), 177-197
126. D. Bhattacharya, D. Ghoshal, D. Mondal, B. K. Paul, J. Pal, B. Gupta, N. Bose, S. Das, Delafossite type  $CuCo_0.5Ti_0.5O_2$  composite structure: A futuristic ceramics for supercapacitor and EMI shielding application, *Ceramics International*, 47 (7), 9907-9922 (2021)
127. S. Bardhan, S. Roy, D.K. Chanda, D. Mondal, S. Das, S. Das, Flexible and reusable carbon dot decorated natural microcline membrane: a futuristic probe for multiple heavy metal induced carcinogen detection, *Microchimica Acta*, 188 (4), 1-12 (2021)
128. S Maity, S Datta, M Mishra, S Banerjee, S Das, K Chatterjee, Poly (3, 4 ethylene dioxythiophene)  $\square$  tosylate—Its synthesis, properties and various applications, *Polymers for Advanced Technologies* 32 (4), 1409-1427
129. D Ghoshal, D Bhattacharya, D Mondal, S Das, N Bose, M Basu, Optical properties of Bromothymol Blue/PVA Composite: Development of flexible high performance laser filter, *Journal of Polymer Research* 28 (3), 1-9

## Annual Report 2020-2021

130. S Debnath, DS Roy, B Ghosh, S Palchoudhuri, S Das, SG Dastidar, IMPLICATIONS OF ANTIBIOTIC RESISTANCES PRODUCED BY PHENOTHIAZINES IN Mycobacterium tuberculosis, *Journal of Microbiology, Biotechnology and Food Sciences* 665-669 (2021)
131. D. Mondal, B.K. Paul, D. Bhattacharya, D. Ghoshal, S. Biswas, K. Das, S. Das, Copper-doped  $\alpha$ -MnO<sub>2</sub> nano-sphere: metamaterial for enhanced supercapacitor and microwave shielding applications, *Journal of Materials Chemistry C*, 9 (15), 5132-5147 (2021)
132. B. Bagchi, N. A. Hoque, N. Janowicz, S. Das, M.K. Tiwari, Re-usable self-poled piezoelectric/piezocatalytic films with exceptional energy harvesting and water remediation capability, *Nano Energy*, 78, 105339 (2021)
133. S Das, D Bera, K Pal, D Mondal, P Karmakar, S Das, A Dey, Guar gum micro-vehicle mediated delivery strategy and synergistic activity of thymoquinone and piperine: An in vitro study on bacterial and hepatocellular carcinoma cells, *Journal of Drug Delivery Science and Technology* 60, 101994
134. S. Banerjee, B. Bagchi, K. Pal, S. Bhandary, A. Kool, N. A. Hoque, P. Biswas, S. Das, Essential oil impregnated luminescent hydroxyapatite: Antibacterial and cytotoxicity studies, *Materials Science and Engineering: C* 116, 111190 (2021)
135. S Roy, S Bardhan, DK Chanda, J Roy, D Mondal, S Das, In Situ-Grown Cd<sup>2+</sup>-Wrapped Boehmite Nanoparticles for Cr(VI) Sensing in Wastewater and a Theoretical Probe for Chromium-Induced Carcinogen Detection, *ACS Applied Materials & Interfaces* 12 (39), 43833-43843 (2021)
136. T Chakraborty, T Debnath, S Bhowmick, A Bandyopadhyay, A Karmakar, S. Das, Enhancement of EMI shielding effectiveness of flexible Co<sub>2</sub>U-type hexaferrite (Ba<sub>4</sub>Co<sub>2</sub>Fe<sub>36</sub>O<sub>60</sub>)-poly(vinylidene fluoride) heterostructure composite materials, *Journal of Applied Physics* 128 (9), 095301 (2020)
137. D Bera, K Pal, D Mondal, P Karmakar, S Das, P Nandy, Gum acacia capped ZnO nanoparticles, a smart biomaterial for cell imaging and therapeutic applications, *Advances in Natural Sciences: Nanoscience and Nanotechnology* 11 (3), 035015
138. D Bhattacharya, D Ghoshal, D Mondal, S Das, BK Paul, M Basu, S Das, Colossal dielectric and room temperature ferromagnetic response in CCoTOdelafossite type nanostructure, *Solid State Sciences* 102, 106136 (2020)
139. S Roy, S Bardhan, DK Chanda, A Maity, S Ghosh, D Mondal, S Singh, Cu (II) and Gd (III) doped boehmite nanostructures: a comparative study of electrical property and thermal stability, *Materials Research Express* 7 (2), 025020 (2020)
140. S Pal, K Pal, S Mukherjee, D Bera, P Karmakar, D Sukhen, Green cardamom mediated phytosynthesis of ZnONPs and validation of its antibacterial and anticancerous potential, *Materials Research Express* 7 (1), 015068 (2020)
141. S Sutradhar, A Bandyopadhyay, T Debnath, T Chakraborty, S Majumdar, S. Das, Effect of hydrothermal synthesis on physical property modulation and biological activity of ZnO nanorods, *Materials Research Express* 6 (12), 1250 (2020)
142. S Bardhan, S Roy, DK Chanda, S Ghosh, D Mondal, S Das, S Das, Nitrogenous carbon dot decorated natural microcline: an ameliorative dual fluorometric probe for Fe<sup>3+</sup> and Cr<sup>6+</sup> detection, *Dalton Transactions* 49 (30), 10554-10566 (2020)
143. D Ghoshal, D Bhattacharya, D Mondal, S Das, N Bose, M Basu, Flexible alizarin red/PVA composites with colossal dielectric and high power laser filtering properties, *Applied Physics A*, 126 (1), 1-13 (2020)
144. S Roy, S Bardhan, DK Chanda, S Ghosh, D Mondal, J Roy, S Das, Development of a Cu(II) doped boehmite based multifunctional sensor for detection and removal of Cr (VI) from wastewater and conversion of Cr (VI) into an energy harvesting source, *Dalton Transactions* 49 (20), 6607-6615 (2020)
145. Subhadipta Mukhopadhyay, Goutam Kumar Maity and Supriti Samanta, Simulation of high speed compressors using SOA-MZI, *International Journal of Research in Engineering and Science (IJRES)*, 9, 16-20 (2021)
146. Supriti Samanta, Goutam Kumar Maity and Subhadipta Mukhopadhyay, Implementation of Orthogonal Codes using MZI, *Micro and Nanosystems (Bentham Science)*, 12, 159-167 (2020)

## Annual Report 2020-2021

147. Suvra Pal, Nirmalya Sankar Das, Brahami Das, Subhadipta Mukhopadhyay and Kalyan Kumar Chottopadhyay, Vdoped BaSnO<sub>3</sub> nanocubes as a field emitting material: Experimental and theoretical investigation, *Applied Surface Science* 530, 147102(2020)
148. S. Saha, S. Mukhopadhyay, D.P. Bhattacharya, Effects of inelastic interaction of the non-equilibrium electrons with the neutral impurities on the non-ohmic characteristics of a compensated semiconductor compound at low lattice temperatures, *Physica B* 608, 412758 (2021)
149. S. Tripathi, A. Hossain, S. K. Seth, S. Mukhopadhyay, Quantitative insights into the crystal structure of a mixed-ligand Co(III) complex: *Experimental and theoretical studies, J. Mol. Struct.* 1216, 128207, 2020.
150. G. Mahmoudi, S. K. Seth, A. B. Riera, F. I. Zubkov, A. Frontera, Novel Pb(II) Complexes: X-Ray Structures, Hirshfeld Surface Analysis and DFT Calculations, *Crystals*, 10, 568, 2020.
151. Y. Saini, S. Mahajan, K. K. Kapoor, G. Hundal, S. K. Seth, Diverse structural assemblies of a series of ninhydrin derivatives: Quantitative analyses from experimental and theoretical studies, *J. Mol. Struct.*, 1224, 128920, 2020.
152. S. Tripathi, S. Islam, S. K. Seth, A. Bauza, A. Frontera, S. Mukhopadhyay, Supramolecular assemblies involving salt bridges: DFT and X-ray evidence of bipolarity, *CrystEngComm*, 22, 8171, 2020.
153. S. Tripathi, A. Hossain, S. K. Seth, S. Mukhopadhyay, Supramolecular association and quantification of intermolecular interactions of 4'-functionalized 2,2':6',2''-terpyridines: Experimental observation and theoretical studies, *J. Mol. Struct.*, 1226, 129254, 2021.
154. Soumen Mondal and Prasad Basu, On the properties of dissipative shocks in the relativistic accretion flows, *Monthly Notices of the Royal Astronomical Society(MNRAS)*, Vol-497, 2119-2132 (2020)
155. Soumen Bera, Sabyasachi Pal, Tapan K. Sasmal, Soumen Mondal, FIRST winged radio galaxies with X and Z symmetry, *The Astrophysical Journal Supplement Series*, ISSN 0067-0049, Vol-251, 9 (2020)
156. Sangita Chatterjee, Soumen Mondal and Prasad Basu, An improved approach to find the height of the accretion disk, *2nd National Conference on Frontiers in Modern Physics Journal of Physics: Conference Series* 1579, 012008 (2020)
157. Tapan K. Susmal, SoumeBera, Sabyasachi Pal, Soumen Mondal, Discovery of Four Miscellaneous Radio Galaxies FromLoTSS DR1, *2nd National Conference on Frontiers in Modern Physics Journal of Physics: Conference Series* 1579, 012021 (2020)
158. Soume Bera, Sabyasachi Pal, Tapan K. Susmal, Soumen Mondal, Dusmanta Patra, MRG: The Miscellaneous Radio Galaxies from the FIRST Survey, *2nd National Conference on Frontiers in Modern Physics Journal of Physics: Conference Series* 1579, 012023 (2020)
159. Takumi Komikawa, Masayoshi Tanaka, Abiral Tamang, Stephen D Evans, Kevin Critchley, Mina Okochi. Peptide-Functionalized Quantum Dots for Rapid Label-Free Sensing of 2, 4, 6-Trinitrotoluene. *Bioconjugate chemistry*, **31**, 1400-1407 (2020)
160. Thanawat Suwatthanarak, Masayoshi Tanaka, Taisuke Minamide, Andrew J Harvie, Abiral Tamang, Kevin Critchley, Stephen D Evans, Mina Okochi. Screening and characterisation of CdTe/CdS quantum dot-binding peptides for material surface functionalisation. *RSC Advances*, **10**, 8218-8223 (2020)
161. Amarjit Kamath, Guillaume Pilet, Abiral Tamang, Biswajit Sinha. [3, 5-dinitrobenzoato-κ1O1) (1, 10-phenanthroline-κ2N1: N10)} copper (II)] 3, 5-dinitrobenzoate: Hydrothermal synthesis, crystal structure and magnetic properties. *Journal of Molecular Structure*, **1199**, 126933 (2020)
162. Raju Subba, Hridaydip Ranjan Dasgupta, Bittu Saha, Gyan Chandra Pariyar, Abiral Tamang, Pranab Ghosh. TiCl<sub>3</sub>-silica: A recyclable solid support for efficient synthesis of substituted imidazoles. *Asian Journal of Nanosciences and Materials***4**, 31-45 (2021)
163. J. Panda, B. S., Satapathy, B. Mandal, R. Sen, B. Mukherjee, R. Sarkar, & B. Tudu, Anticancer potential of docetaxel-loaded cobalt ferrite nanocarrier: an in vitro study on MCF-7 and MDA-MB-231 cell lines. *Journal of Microencapsulation*, 38(1), 36-46 (2021).

## Annual Report 2020-2021

164. K. Roy, S. Jana, Z. Mallick, S. K. Ghosh, B. Dutta, S. Sarkar, C. Sinha and D. Mandal, Two-Dimensional MOF Modulated Fiber Nanogenerator for Effective Acoustoelectric Conversion and Human Motion Detection, *Langmuir* 37, 7107-7117 (2021)
  165. B. Mahanty, S. K. Ghosh, K. Maity, K. Roy, S. Sarkar, D. Mandal, "All-Fiber Pyro- and Piezoelectric Nanogenerator for IoT Based Self-Powered Health-care Monitoring", *Mater. Adv.*, 2, 4370-4379 (2021)
  166. Kritish Roy, Srikanta Jana, Sujoy Kumar Ghosh, Biswajit Mahanty, Subrata Sarkar, Chittaranjan Sinha, Dipankar Mandal, 3D MOF Assisted Self-Polarized Electret: An Effective Auto Powered Remote Healthcare Monitoring Approach, *Langmuir*, 36, 11477-11489 (2020)
  167. Shib Shankar Singha, Siddheswar Rudra, Suchanda Mondal, Mukul Pradhan, Arpan Kumar Nayak, Biswarup Satpati, Prabir Pal, Kaustuv Das, Achintya Singha, Mn incorporated MoS<sub>2</sub> nanoflowers: A high performance electrode material for symmetric supercapacitor, *Electrochimica Acta*, 338, 135815 (2020)
  168. Somtirtha Banerjee, Biswajoy Bagchi, Kunal Pal, Suman Bhandary, Arpan Kool, Nur Amin Hoque, Prosenjit Biswas, Pradip Thakur, Kaustuv Das, Parimal Karmakar, Sukhen Das, Essential oil impregnated luminescent hydroxyapatite: Antibacterial and cytotoxicity studies, *Materials Science and Engineering: C* 116 (2020)
- E. Research Articles Published in Edited Volumes during the year:**  
**Sukhen Das, Biplab K. Pal, Anindita Dey**, Chapter ID: 73094, Chapter Title: Inclusion of Nanoparticles in Electrochemical Cell: An Attempt for Harnessing Solar Energy in Inexpensive Ways Book ID: \_21183\_, Book Title: A Closer Look at Electrochemical Cells, Publisher: Nova Science Publishers, Inc.
- F. Research Articles Published in Conference Proceedings during the year:**
1. **Waste capacitor: A fresh approach to detect and remove Cr(VI) from water and making it an energy harvesting material**  
S Roy, S Bardhan, J Roy, S Das, *Materials Today: Proceedings* 46, 6223-6229
  2. **Highly Fluorescent Carbon Nanoparticle: An Emerging Bioimaging Intervention**  
D Bera, K Pal, P Karmakar, S Das, P Nandy: MDPI AG, MOL2NET- International Conference Series on Multidisciplinary Sciences, 2020, 6, ISSN: 2624-5078
  3. **Phytofabrication of silver nano particles using Ocimum sanctum leaf extract and their antibacterial and anticancer activity through oxidative damage**  
D Bera, K Pal, P Karmakar, S Das, P Nandy: MDPI AG, MOL2NET- International Conference Series on Multidisciplinary Sciences, 2020, 6, ISSN: 2624-5078
  4. **Novel Algorithms for In Silico Peptide Vaccine Design with reference to Ebola Virus**  
S Biswas, T Dey, S Chatterjee, S Manna, A Nandy, S Das, P Nandy: 2020 International Conference on Computer, Electrical & Communication Engineering (ICCECE), IEEE, 1-8
  5. **Sodium borohydride assisted reduction of toxic pollutants by silver coordinated melamine based polymeric material:** D Das, R Sarkar, S Mukherjee, KK Chattopadhyay, *Materials Today: Proceedings* 44, 444-452 (2021).
  6. **Microwave-assisted rapid preparation of ZnS nanosphere for latent fingerprint detection and anti-counterfeiting applications:** A Das, KK Chattopadhyay, *AIP Conference Proceedings* 2265 (1), 030051 (2020)
  7. **Well-dispersed amorphous carbon nanotube-alumina nanocomposite for nanofluid with improved thermal conductivity:** SK Sarkar, A Jha, KK Chattopadhyay, *AIP Conference Proceedings* 2269 (1), 030072.
  8. **BaSnO<sub>3</sub> nanoparticles as blue emitting phosphor and efficient photocatalyst:** S Pal, NS Das, B Das, B Das, S Mukhopadhyay, KK Chattopadhyay, *AIP Conference Proceedings* 2220 (1), 020014 (2020).
  9. **Impact of morphological change on improvement of photo-catalytic behavior of Co<sub>3</sub>O<sub>4</sub> based system,**

## Annual Report 2020-2021

- D Mitra, R Sarkar, KK Chattopadhyay, P Chattopadhyay, **AIP Conference Proceedings** 2220 (1), 020029 (2020).
10. **Polypyrrole decorated amorphous CNT: A potential ORR electrocatalyst in alkaline medium:** S Maity, M Samanta, T Roychowdhury, S Rakshit, KK Chattopadhyay, **AIP Conference Proceedings** 2220 (1), 080039.
  11. **Efficient photocatalytic activity of bismuth oxyhalides with preferentially oriented (210) facets under visible light:** R Sarkar, D Das, B Das, S Sarkar, KK Chattopadhyay, **AIP Conference Proceedings** 2220 (1), 020030 (2020).
  12. **Facile preparation of porous Ga<sub>2</sub>O<sub>3</sub> nano/microbars for highly efficient photocatalytic degradation:**  
B Das, B Das, S Pal, R Sarkar, NS Das, S Sarkar, KK Chattopadhyay, **AIP Conference Proceedings** 2220 (1), 020013.
  13. **Spectrofluorometric assay using gold nanoparticles and cationic dye Rhodamine B for selective and sensitive detection of L-Cysteine in aqueous environment:** Pabitra Kumar Paul, Pradip Maiti, *The Open Access Journal of Science and Technology*, Volume S(1), 2020, pp. 13-13.
  14. **Effect of montmorillonite clay on the fluorescence resonance energy transfer between two cationic dyes Acridine Orange and Rhodamine B in solution:** Utsav Chakraborty, Pradip Maiti, Tanmoy Singha, Ujjal Saren, Alapan Pal, Pabitra Kumar Paul\* *Materials Today: Proceedings*, Volume 46, Part 14 (2021) pp. 6275-6285
  15. **BaSnO<sub>3</sub> nanoparticles as blue emitting Phosphor and efficient Photocatalyst:** Suvra Pal, Nirmalya Sankar Das, Brahamu Das, Biswajit Das, Subhadipta Mukhopadhyay and Kalyan Kumar Chottopadhyay  
*AIP Conference Proceedings* 2220, 020014, ICC 2019, ISBN-978-0-7354-1976-6, (2020)
  16. **An improved approach to find the height of the accretion disk**  
Sangita Chatterjee, Soumen Mondal and Prasad Basu: 2nd National Conference on Frontiers in Modern Physics *Journal of Physics: Conference Series* 1579(2020) 012008.
  17. **Discovery of Four Miscellaneous Radio Galaxies From LoTSS DR1**  
Tapan K. Susmal, Soume Bera, Sabyasachi Pal, Soumen Mondal: 2nd National Conference on Frontiers in Modern Physics *Journal of Physics: Conference Series* 1579 (2020) 012021.
  18. **MRG: The Miscellaneous Radio Galaxies from the FIRST Survey**  
Soume Bera, Sabyasachi Pal, Tapan K. Susmal, Soumen Mondal, Dushmantra Patra: 2nd National Conference on Frontiers in Modern Physics *Journal of Physics: Conference Series* 1579(2020) 012023.

### Patents Granted/ Published/ Filed during the year

Name of the Inventors	Title of the Patent	National/ International	Status Granted/ Published / Filed	Patent Number	Date of Publication
Sandipan Mallik, Rahul Roy, Gufran Ahmad, Ahmad Raja, Syed HabiburRaheman, Ajit Dash, Prakash Panigrahi, Prashant Kumar Singh, Shrabani Guhathakurata, Nabin Baran Manik, Palash Das, Satya Sopan Mahato	An Automated Probing System for Measuring Electrical Characteristics of On-Wafer Devices and a Method Thereof	International	Published	202031041107	16/10/2020

**Annual Report 2020-2021**

**H. Research Collaboration with other Departments/Institutes/Industries:**

<b>Name of the Teacher(s)</b>	<b>Name of the Collaborator(s)</b>	<b>Collaborating Dept./Inst./Indus.</b>	<b>Nature of Collaboration</b>	<b>Duration</b>
Argha Deb	Md. Nurujjaman	N.I.T. Sikkim	Development of Network Monitoring Station	5 years
Argha Deb	Dipok Bora	Diphu Govt College, Assam	Development of Network Monitoring Station	5 years
Argha Deb	Sibaji Raha	Bose Institute, Kolkata	Environmental Radioactivity Studies	5 years
Joydeep Chowdhury	Krishnananda Chattopadhyay	Structural Biology & Bio-Informatics Division, CSIR-Indian Institute of Chemical Biology, India	Co-author	1 year
ParthaPratim Ray	Dirtha Sanyal	VECC	Experimental	Apr. 20 – Mar. 21
ParthaPratim Ray	Tapas Kumar Maji	JNCASR	Experimental	Apr. 20 – Mar. 21
ParthaPratim Ray	Biswajit Dey	Visva Bharati University	Experimental	Apr. 20 – Mar. 21
ParthaPratim Ray	M H Mir	Aliah University	Experimental	Apr. 20 – Mar. 21
ParthaPratim Ray	Tapas Kumar Mandal	IIT, Roorkee	Experimental	Apr. 20 – Mar. 21
ParthaPratim Ray	Raju Mandal	IACS	Experimental	Apr. 20 – Mar. 21
ParthaPratim Ray	S Patra	IEST	Experimental	Apr. 20 – Mar. 21
Pabitra Kumar Paul	Syed Arshad Hussain	Tripura University	Research Activity	Ongoing
Sanat Karmakar	Krishnananda Chattopadhyay IICB, Kolkata Academic 2018-till date	IICB, Kolkata	Academic	2018-till date
Kaustuv Das	Achintya Singha	Dept. of Physics, Bose Institute	Joint project in SERB, DST India	3 years

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year**

**A. Books/Monographs Published:**

<b>Name of the Author(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
------------------------------	------------------------------------	------------------------------	----------------------	-------------



**Annual Report 2020-2021**

Sandipan Mallik, Prashant Kumar Singh, Gufran Ahmad, ShrabaniGuhathakurata, S.S. Mahato and <b>Nabin Baran Manik</b>	<b>Book Chapter</b> : High – Sensitive Terahertz Biosensors <b>Book Name:</b> Advanced Materials for Future Terahertz Devices, Circuits and Systems. Lecture Notes in Electrical Engineering	Springer	978-981-33-4489-1	2021
S Ghosh, A Chandra, S Sarkar, KK Chattopadhyay in Advanced Materials for Future Terahertz Devices,	<b>Silicon Nanowires as a Potential Material for Terahertz Applications</b>	(Springer Nature), Circuits and Systems 727, 177		2021
Shrabani Ghosh, Supratim Maity, K. K. Chattopadhyay, in the book Toughened Composites:	<b>Carbon nanostructures based composite for energy related applications</b>	Micro Macro Systems, (CRC Press), In press,		2021
Diptonil Banerjee, K.K Chattopadhyay, Encyclopedia of Renewable and Sustainable Materials,	<b>Thermoelectric Materials: Improving Energy Efficiency and Decreasing CO<sub>2</sub> Emissions</b>	Elsevier		2020
D. Mitra, K.K Chattopadhyay, P.Chattopadhyay	<b>Nanofluid in Energy Harvesting and Related Applications</b>	Elsevier		2020

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
<b>Bharati Tudu</b>	Counseling and Stress Management	Jadavpur University	02.02.2021 to 08.02.2021
<b>Subrata Sarkar</b>	Online RC on “Contemporary Development Trends in Material Science and Engineering”	Jawaharlal Nehru Technological University Hyderabad	09.08.21- 24.08.21

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Argha Deb</b>	Invited Lecture	National Science Day Celebration Webinar	Sarat Centenary College Dhaniakhali, Hooghly, WB	One Day (28.02.2021)

### Annual Report 2020-2021

<b>K.K. Chattopadhyay</b>	Invited Lecture	Webinar Internship Course of Emerging Trends in Nanomaterials for Different Device Architectures (ETNDDA-2021) on Fundamentals of Nanotechnology – I	Online	18 September, 2021
<b>K.K. Chattopadhyay</b>	Invited Lecture	Webinar Internship Course of Emerging Trends in Nanomaterials for Different Device Architectures (ETNDDA-2021) on Fundamentals of Nanotechnology – II	Online	19 September, 2021.
<b>K.K. Chattopadhyay</b>	Invited Lecture	Webinar, AMMRUT MAHOTSAVA – INDIA @75	National Test House, Kolkata	11-12 August, 2021
<b>K.K. Chattopadhyay</b>	Invited Lecture	Induction Programme at the Govt. college	Government College of Engineering and Ceramic Technology, Kolkata,	30 September, 2021
<b>K.K. Chattopadhyay</b>	Invited Lecture	Physics Colloquium	Presidency University	23 December, 2020
<b>K.K. Chattopadhyay</b>	Invited Lecture	E Workshop on Spectroscopy	National Physical Laboratory	3 December, 2020
<b>K.K. Chattopadhyay</b>	Jury for best paper presentation	E Workshop on Spectroscopy	National Physical Laboratory	4 December, 2020.
<b>K.K. Chattopadhyay</b>	Keynote Address	International Conference on Advances on Nanooptoelectronics and its applications 2020	Rajib Gandhi University	12-14 October, 2020,
<b>K.K. Chattopadhyay</b>	Invited Lecture	International conference on Nanoscience and Technology	Biswabangla Convention Centre, Kolkata	5 -7 March, 2020
<b>K.K. Chattopadhyay</b>	Invited Lecture	<i>International Conference on Materials Genome</i>	SRM University	5-7 February, 2020
<b>K.K. Chattopadhyay</b>	Invited Lecture	40 <sup>th</sup> AGM of EMSI, Hyderabad	Hyderabad International Convention Centre	3-7 February, 2020
<b>Pabitra Kumar Paul</b>	Invited Lecture	“RECENT ADVANCES IN MATERIAL SCIENCE-2020”	(Via online mode) GOVT. DEGREE COLLEGE,	19.09.2020

**Annual Report 2020-2021**

			KAMALPU R, DHALAI, TRIPURA	
<b>Kaustuv Das</b>	Session Chair	5 <sup>th</sup> International Conference on Emerging Electronics (ICEE-2020)	Online, Organized by IIT Delhi	3 hours

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Argha Deb/ Saheli Chowdhury</b>	Soil radon as Earthquake Precursor studied at a Network of Monitoring Stations in the Eastern Himalayas and the Bakreswar-Tantloi Geothermal Region of Eastern India	Sedimentation, Tectonics and Metallogeny of North-East India	North-Eastern Hill University, Shillong	21-23 September, 2020
<b>Argha Deb/ Saheli Chowdhury</b>	Soil radon monitoring for earthquake precursor study by networking approach in eastern India	Radiation Awareness and Detection in Natural Environment (RADNET-III)	Govt. PG College, Tehri Garhwal, and HNB Garhwal University Uttarakhand.	18-20 March, 2021
<b>Brajadulal Chattopadhyay</b>	Bacterial Concrete - A Journey from Greenhouse to Green Home	One Day National Webinar -Organized by Department of Physics In Association with IQAC, ShyampurSiddheswariMahavidyalaya Ajodhya, Howrah	Webinar	5 August, 2020 Time: 4PM Onwards
<b>Nabin Baran Manik/ Sudipta Sen</b>	Effect of Two Different Sized Multi Walled Carbon Nanotubes (MWCNT) on the Ideality Factor and Threshold Voltage of Methyl Red (MR) Dye Based Organic Device	3rd International Conference on Current Trends in Materials Science and Engineering (CTMSE 2021)	Kolkata	11 -13 March, (2021)
<b>Bharati Tudu</b>	Solvothermal synthesis of nitrogen doped graphene for high performance energy storage	International Conference on Multifunctional Electronic Materials and Processing (MEMP-2021)	C-MET, Pune (Mumbai)	08-10 March 2021

## Annual Report 2020-2021

### 6. Major Achievements of the Department during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Sukhen Das	Shiksha Ratna	Dept. of Higher Education, Govt. Of West Bengal	Kolkata

#### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Sudipta Sen	Research Excellence Award (2021)	Institute of Scholars (InSc)	Bengaluru
Sudipta Sen	Best Poster Award (2021)	Department of Basic Sciences and Humanities, IEM Kolkata (11-13 March)	Kolkata
Sudipta Sen	Best Poster Award (2021)	IEM, Kolkata, in association with IEM Society of Physics Students (SPS) Chapter, American Institute of Physics and Smart Society, USA (1 – 3 April)	Kolkata
Shubham Roy	Young Achievers Award	INSC	Bangalore
Souravi Bardhan	Young Achievers Award	INSC	Bangalore

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
16	B.Sc.	M.Sc.& Integrated M. Sc.-Ph.D.	TIFR-Mumbai, IISc-Bangalore, IIT-Kanpur, SNBNCBS-Kolkata, ISER-Tirupati
11	M.Sc.	Ph.D.	IACS-Kolkata, IIT-Madras, UGC-DAE-CSR-Kolkata, HRI-Allahabad, ISER-Kolkata, IMSC-Chennai

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	8
GATE	32
JAM	17
JEST	19
GRE	1

## Annual Report 2020-2021

### ACHIEVEMENT OF DR. ATIS KUMAR CHATTOPADHYAY, PRINCIPAL SECRETARY, FACULTY COUNCIL OF SCIENCE

#### Area of Research Activities:

1. Synthesis and characterization of Nanocomposites for biomedical application by green synthesis.
2. Synthesis of Nanoconjugates and its details Preclinical investigation.
3. Pathophysiological investigation of various medicinal, herbal products by animal experimentation using histological, enzymatic and biochemical techniques.
4. Development of herbal preparation, its detailed analysis and pre-clinical study.
5. Detailed systemic toxicological investigation of the drugs and toxins, both short term and long term.

#### Article published in Journals:

1. Soumendra Darbar, Srimoyee Saha, Kausikisankar Pramanik and **Atis Kumar Chattopadhyay**. Antioxidant and immunomodulatory effect of AKSS16-LIV01—a multi herbal formulation against ethanol induced liver dysfunction in mice. *Clinical Phytoscience* 7, no. 1 (2021): 1-20.
2. Soumendra Darbar, Srimoyee Saha, Kausikisankar Pramanik and **Atis Kumar Chattopadhyay**. Sanative effect of multiherbal formulation—AKSS16-LIV01 on CCl<sub>4</sub>-induced hepatic dysfunction in mice. *Asian Journal of Pharmaceutical and Clinical Research* (2021): 101-106.
3. Soumendra Darbar, Srimoyee Saha, Kausikisankar Pramanik and **Atis Kumar Chattopadhyay**. Ameliorative Effect of Multi Herbal Formulation on Lipid Peroxidation and Redox Dysfunction in Ethanol Induced Hepatic Imbalance. *Indian Journal of Pharmaceutical Education and Research* 55, no. 1 (2021): 215-223.
4. Soumendra Darbar, Srimoyee Saha and **Atis Kumar Chattopadhyay**. "Ethanol Intoxicated Hepatic Oxidative Stress Mitigated by Poly-Herbal Formulation—Trasina<sup>®</sup> in Murine Model." *Innoriginal: International Journal of Sciences* 8, no. 3 (2021).
5. Soumendra Darbar, Srimoyee Saha and **Atis Kumar Chattopadhyay**. Mitigating Effect of Herbal Medicine-Livina<sup>®</sup> upon Serum, Liver and Kidney Against Ethanol Induced Oxidative Stress in Mice. *Innoriginal: International Journal of Sciences* (2021): 1-14.
6. Holima Khatun, Koushik Das, Dilip Kumar Nandi, Jayasree Laha, J. Sreenivasa Rao, and **Atis Kumar Chattopadhyay**. Anti-hyperlipidemic effect of oils from *Sesamum indicum* L. and *Vicia faba* L. on male Wistar rats. *Future Foods* 4 (2021): 100060.
7. Holima Khatun, Mousumi Mitra, Koushik Das, **Atis Kumar Chattopadhyay**, and Dilip Kumar Nandi. Reduction of oxidative stress and apoptosis in hyperlipidemic rats by composite oil (CO) of *Sesamum indicum* L. and *Vicia faba* L. *Mediterranean Journal of Nutrition and Metabolism* Preprint (2021): 1-11.

## Annual Report 2020-2021

### Book Chapter:

1. Soumendra Darbar, Srimoyee Saha, Kausikisankar Pramanik and **Atis Kumar Chattopadhyay**. Haematological modulations by fixed dose combination (FDC) of tramadol hydrochloride/paracetamol (THP). *Frontiers in Clinical Drug Research-Hematology*, **2021**, Vol. 4, 1-00, Chapter-6, Bentham Science Publishers (In Press).

### Paper Presented in the International Seminar:

1. **Soumendra Darbar, and Atis Kumar Chattopadhyay. Unprecedented Redox scavenging signature alongwith antioxidant action of silver nanoparticle coupled with *Andrographispaniculata*(AP-Ag NP) against carbon tetrachloride (CCl<sub>4</sub>) induced toxicity in mice. 3rd Edition of World Nanotechnology Conference USA| Virtual Event April 19-20, 2021 Oral Presentation**
2. Soumendra Darbar, and Atis Kumar Chattopadhyay. Free radical scavenging potential and Antioxidant activity of SilverNanoparticle Coupled with *Andrographispaniculata* (AP-Ag NP) Against Carbon tetrachloride (CCl<sub>4</sub>) induced toxicity in mice.CSPS | PSJ | CC-CRS 2021 Symposium(Virtual) to be held May 30-June 3, **2021. Oral Presentation**

### Paper Presented in the National Seminar :

1. Soumendra Darbar, and Atis Kumar Chattopadhyay. Application of Nanotechnology in human and veterinary health. *Bio spectrum 2021* (Online Mode). 18-20 November, 2021, Organized by UEM & SMART Society, Kolkata, West Bengal. **Oral Presentation**

**SECTION B**

**[Academic Report 1.04.20 to 31.03.2021]**

**FACULTY COUNCIL OF INTERDISCIPLINARY STUDIES,  
LAW & MANAGEMENT**

**A. DEPARTMENT**



## Annual Report 2020-2021

### ADULT, CONTINUING EDUCATION & EXTENSION

Phone: 033-2414-6236

033-2457-2290

H.O.D :Prof. Partha Sarathi Chakraborty

Sri. Santwan Chattopadhyay (since 3.2.2021)

E-mail:hodadultcontinuing@jadavpuruniversity.in

#### 1. Vision and Mission of the Department:

**A. Vision:** Taking University expertise beyond the boundaries of the University to facilitate holistic development of the society and creating vibrant relationship between the University and broader society.

#### B. Mission:

- i) Tailoring new innovative job oriented continuing education courses
- ii) Empowering the underprivileged through extension centres with modern relevant programmes.
- iii) Emphasizing on action research

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
MA in Journalism & Mass Communication	2	1 <sup>st</sup> year	50
		2 <sup>nd</sup> year ...	49
Post Graduate Diploma in Mass Communication	1	---	70

#### 3. Faculty Members in the Department :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
3	0	0	3

## Annual Report 2020-2021

### 4. Research Activities:

#### A. Areas of Research Activities : (Broad Areas)

1. Adult Education/ Continuing Education/ Extension
2. Mass Communication
3. Engineering Management

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

1. Chattopadhyay S, 2020, Kolkata Purashree: A Relentless Vernacular Organ for Municipal Public Relations, IISRR –International Journal of Research, V-6, Issue-3, Pp-113-121.
2. Chattopadhyay S, 2020, Challenges of Handling Municipal Public Relations During COVID-19 Pandemic, IISRR –International Journal of Research, V-6, Sp. Issue-II, Pp-114-121.
3. Partha Sarathi Chakraborty, 2020, Study on Effective Inventory Management by Determining the Appropriate Safety Stock in an Automobile Manufacturing Industry, SSRG International Journal of Mechanical Engineering, V-7, Issue-7, Pp-10-17.
4. P.S.Chakraborty 2020, Study on Productivity Improvement in Medium Scale Manufacturing Industry by Execution of Lean Tools, International Journal of Engineering Research in Africa, V-48, Pp- 193-207.
5. Partha Sarathi Chakraborty, 2020, Minimization of Rejection Rate and Lead Time in Medium Scale Foundry Industry by using Lean Manufacturing Practices, SSRG International Journal of Mechanical Engineering, V-7, Issue-10, Pp-1-12.
6. Partha Sarathi Chakraborty, 2020, Performance and Emission Test on CI Engine by using Algae Oil With Methanol as an Alternative, ShodhSarita, V 7, Issue 28, Pp- 151-155.
7. Partha Sarathi Chakraborty, 2020, Experimental Analysis of Emission Characteristics of I.C. Engines using Catalytic Converter Coated with Titanium Dioxide Cobalt Oxide Catalyst, International Journal of Mechanical and Production Engineering Research and Development, V 10, Issue 3, Pp- 12063-12074.
8. Partha Sarathi Chakraborty, 2020, Design and Fabrication of Three Way Catalytic Converter by using Copper Oxide Silicon Dioxide as Catalyst Coating and Analysis of Emission Characteristics by using Neem Oil Blends in DI Engine, Shodh Sarita, V 7, Issue 28, Pp- 86-91.
9. Partha Sarathi Chakraborty, 2020, Impact of Natural Gas Combined Cycle Power Plant on Gomati River Tripura, Journal of Green Engineering, V 10, Issue 11, Pp-11853-11871.
10. Partha Sarathi Chakraborty, 2020, Process Analysis on Large Scale Manufacturing Industry for Performance and Sustainable Development, Journal of Green Engineering, V 10, Issue 12, Pp-12737-12752.

**Annual Report 2020-2021**

**5. Professional Activities by the Faculty Members / Research Scholars of the Department during the year:**

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
Santwan Chattopadhyay	Municipal Public Relations: Adaptation during Covid 19 Pandemic.	Covid-19 Pandemic & Communication: Its use and Misuse in Shaping Discourse Via-a-Vis Society, Economy & Culture.	Rabindra Bharati University	17-18 June 2020

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

<b>Number of students enrolled in higher education</b>	<b>Programmes graduated from</b>	<b>Programmes admitted to</b>	<b>Institutes admitted to</b>
1	MA	Ph.D	Tezpur University

**B. Qualifying in State/ National/ International Level Examinations:**

<b>Name of the Examination</b>	<b>No. of students selected/ qualified</b>
NET	2

**B. INTERDISCIPLINARY SCHOOL**

ADVANCED STUDIES IN INDUSTRIAL POLLUTION CONTROL ENGINEERING

Phone: 033-2457-2482

Director: Abhijit Bhowal

E-mail: avijit.bhowal@jadavpuruniversity.in

4. Research Activities:

D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

1. L. Das , S Sengupta , **P. Das** , **A. Bhowal** , C Bhattacharjee , Experimental and Numerical modeling on dye adsorption using pyrolyzed mesoporous biochar in Batch and fixed-bed column reactor: Isotherm, Thermodynamics, Mass transfer, Kinetic analysis, *Surfaces & Interfaces*, 23, 100985, **2021**, <https://doi.org/10.1016/j.surfin.2021.100985>
2. V. Chakraborty, **P. Das** , P. Roy. Synthesis of nano-silica-coated biochar from thermal conversion of sawdust and its application for Cr removal: kinetic modelling using linear and nonlinear method and modelling using artificial neural network analysis, *Biomass Conversion and Biorefinery*, **2021**, <https://doi.org/10.1007/s13399-020-01024-1>.
3. V. Chakraborty, **P. Das** , P. Roy. Graphene oxide-coated pyrolysed biochar from waste sawdust and its application for treatment of cadmium-containing solution: batch, fixed-bed column, regeneration, and mathematical modeling, *Biomass Conversion and Biorefinery*, **2021**, <https://doi.org/10.1007/s13399-020-01153-7>.
4. P. Ganguly, A. Khan, **P. Das**, **A. Bhowal** , Cellulose from lignocellulose kitchen waste and Its Application for energy and environment: Bioethanol production and dye removal, *Indian Chemical Engineering Journal*, 63(2) 161-171, **2020**. <https://doi.org/10.1080/00194506.2020.1833765>.
5. P. Ganguly, R. Sarkhel, S. Bhattacharya, **P. Das**, **A. Bhowal**, A. Saha, Integral approach of treatment of phenolic wastewater using Nano-metal coated Graphene Oxide in combination with advanced oxidation, *Surfaces and Interfaces*, 21, 100660-100670, **2020**. <https://doi.org/10.1016/j.surfin.2020.100660>.
6. P. Ganguly, R. Sarkhel, **P. Das**, Synthesis of pyrolyzed biochar and its application for dye removal: Batch, kinetic and isotherm with linear and non-linear mathematical analysis, *Surfaces & Interfaces*, 20, 100616-100625, **2020**. <https://doi.org/10.1016/j.surfin.2020.100616>.
7. L. Das, **P. Das**, **A. Bhowal**, C. Bhattacharjee, Synthesis of hybrid hydrogel nano-polymer composite using Graphene oxide, Chitosan and PVA and its application in wastewater treatment, *Journal of Environmental Technology and Innovation*, 18,, 100664-100680, **2020**. <https://doi.org/10.1016/j.eti.2020.100664>.
8. L. Das, **P. Das**, **A. Bhowal**, C. Bhattacharjee, Treatment of malachite green dye containing solution using bio-degradable Sodium alginate/NaOH treated activated sugarcane bagasse charcoal beads: Batch, optimization using response surface methodology and continuous fixed bed column study, *Journal of Environmental Management*, 276, 111272-111283, **2020**. <https://doi.org/10.1016/j.jenvman.2020.111272>.
9. S Bhattacharya, P Banerjee, **P. Das**, **A. Bhowal**, S K. Majumdar, P Ghosh, Removal of aqueous carbamazepine using graphene oxide nanoplatelets: process modelling and optimization, *Sustainable Environment Research*, 30:17, **2020**, <https://doi.org/10.1186/s42834-020-00062-8>
10. R Sarkhel, S Sengupta, **P. Das**, **A. Bhowal**, Comparative biodegradation study of polymer from plastic bottle waste using novel isolated bacteria and fungi from marine source, *Journal of Polymer Research*, 27:16, **2020**, DOI : 10.1007/s10965-019-1973-4,
11. A Ganguli, P Ganguly, **P. Das**, A Saha, Integral approach for the treatment of phenolic wastewater using gamma irradiation and Graphene oxide, *Groundwater for Sustainable Development*, 10:100355, **2020**, <https://doi.org/10.1016/j.gsd.2020.100355>

## Annual Report 2020-2021

**E. Research Articles Published in Edited Volumes during the year:**

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. P Ganguly, R Sarkhel, **P Das** (2020). The second and third generation biofuel technology: comparative perspectives. In: Sustainable Fuel Technologies Handbook [Accepted]. ISBN: 978-0-12-822989-7, Page: 29-46, 2020
2. R Sarkhel, P Ganguly, **P Das**, Industrial dye degradation by different nanocomposite doped material. In: Photocatalytic degradation of dyes, current trends and future perspectives. Elsevier, Netherlands, 377-403, 2020. DOI: 10.1016/C2020-0-00551-7. ISBN: 978-0-12-823876-9.

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:**

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
<b>Prof. Papita Das</b>	Orientation Training Programme [OTP] for Mentors of Higher Educational Institutions [HEIs]	NITTTR Kolkata	January 27-February 04, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Papita Das</b>	Invited Speaker	BSAEH, 2021	Jaipur	4 days
<b>Prof. Papita Das</b>	Deliver a lecture	Short term online course sponsored by ATAL ACADEMY, Govt of India	Durgapur	7 days

**6. Major Achievements of the School during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/Government Recognized National/International Bodies:**

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
<b>Prof. Papita Das</b>	Ranked in World Ranking of top 2% Scientist (2020) published by Stanford University which represents the top 2% the most –cited Scientist	Stanford Institute	USA

## Annual Report 2020-2021

### AUTOMOTIVE ENGINEERING

Phone : 033-2414-6927

Director : Prof. Ranajit Kumar Chakrabarti

E-mail : [rkchakrabarti@yahoo.co.in](mailto:rkchakrabarti@yahoo.co.in)

#### 4. Research Activities:

##### A. Areas of Research Activities :

Research on development of a new generation of Automotive Engines.

Methoding of Engine Castings.

Development of new materials to be used for different automobile components and their microstructure interpretation and mechanical properties.

Energy economy analysis and pollution control in Foundries producing automobile components by modifying the existing cupolas to divided blast cupolas.

Research on preparation of Molding Sand having properties suitable for automobile castings.

##### B. Major Research Projects :

- a) "R&D and Innovation Centre for Howrah Foundry Cluster" sponsored by Technology Information Forecasting and Assessment Council (TIFAC), Department of Science and Technology, Government of India.
- b) "Modification of divided blast cupolas and Conversion of conventional cupolas into divided blast cupolas for Howrah Foundries" - a project sponsored by Technology Information Forecasting and Assessment Council (TIFAC), Department of Science and Technology, Government of India.

#### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

##### C. Seminar/Workshop/ Conference/ Symposium organized :

The R&D and Innovation Centre for Howrah Foundry Cluster building was inaugurated by Dr. Anil Kakodkar, Chairman, Technology Information Forecasting and Assessment Council (TIFAC), Department of Science & Technology (DST), Government of India, New Delhi. Eminent foundry technologist, entrepreneurs and expert members from IFA, HFA & IIF attended the inaugural function. Seminar/workshops were organized in collaboration with IFA, HFA and IIF at Jadavpur and Howrah.

#### 6. Major Achievements of the School during the year :

The project on R&D and Innovation Centre for Howrah Foundry Cluster has achieved the following major achievements.

The key factors that played important role for the success of the project "R&D and Innovation Centre for Howrah Foundry Cluster, JU".

The major weaknesses of the Howrah Foundry Cluster were diagnosed during the pilot project work "Technology Gap Analysis for Howrah Foundry Cluster" carried out by the School of Automotive Engineering, Jadavpur University.

The new project proposal was prepared by School of Automotive Engineering with the guidance & advice from eminent academicians and industrial people which realistically assessed the problems and their solution methodology for the up gradation of the Howrah Foundry Cluster.

The project execution is being done by School of Automobile Engineering with the guidance & advice from a group of academicians and people from associations such as IIF, IFA and IIM.

The project was monitored and overviewed periodically by experts from different spheres in Foundry Industry.

The project execution received able guidance from the TIFAC team during various occasions more notable from Dr. R. Chidambarem and Dr. Anil Kakodkar both leading scientist advisors of Govt. of India during various parts of execution of the project.

The timely release of funds from TIFAC.

The relentless effort of everybody associated with the execution of this project which saw the success of the project including the construction of the building of the NODAL Centre and installation of the

## Annual Report 2020-2021

different laboratories in it as well as the procurement and use of the “Mobile Casting Clinic”, a unique feature of this project.

Timely introduction of Mobile Casting Clinic in Howrah Foundry Cluster to circulate about the facilities made available by distributing leaflets/yearly membership through IFA & for sand testing through mobile casting clinic.

### **Preamble:**

The micro, small and medium enterprises (MSME) programme of Technology, Information Forecasting and Assessment Council (TIFAC), an autonomous body under DST, Govt. of India was initiated in 2006 to cater to the Technological and R&D needs of the MSME clusters. With the above mission, TIFAC selected the School of Automotive Engineering, Jadavpur University as a knowledge Partner to conduct a study on the Technology Gap Analysis for Howrah Foundry Cluster.

Currently the cluster has about 173 operational foundries producing about 1.0 million Tones of Casting and employing about 1 Lakh people. The study was carried out and completed in a period six months, in close association and coordination with experts and representatives of Cluster, Industries, Indian Foundry Association, Howrah Foundry Association and Academic bodies like the Indian Institute of Foundry men and Indian Institute of metals.

The study highlighted the key areas where technological interventions are needed in the cluster as follows:-

- Improvement of foundry sand testing.
- Facility for metallurgical analysis of castings.
- Use of simulation software for methoding of casting.
- Conversion of conventional cupolas into Divided Blast Cupolas and correcting the incorrectly designed DBCs. for better energy economy.
- Routine analysis of the causes of casting defects and removal of such causes.
- Manpower development.
- Safety arrangements to workers.
- Product diversification from conventional municipal castings to High-tech Automobile Castings.

In order to implement the above technological interventions, TIFAC, DST subsequently supported a project for setting up of a “R&D and Innovation Centre for Howrah Foundry Cluster” at the School of Automotive Engineering, Jadavpur University to cater to the R&D and Technological needs of the Howrah Foundry Cluster. The School of Automotive Engineering, Jadavpur University was selected by TIFAC as the “Knowledge Partner” and the project is being executed in association with “Indian Foundry Association (IFA)”.

### **About the project “R&D and Innovation Centre for Howrah Foundry Cluster”. :**

This project was awarded to the School of Automotive Engineering, Jadavpur University on 07.11.2008.

This project has two major components:-

- (i) Installation of a Nodal Centre at Jadavpur University for solution of problems associated with methoding of casting, improvement and development of value added castings. The nodal centre is also equipped with laboratories for Mechanical testing, Metallographic and Chemical Analysis of samples of castings.
- (ii) Installation of a Mobile Casting Clinic for solution of problems associated with moulding sand and casting at the foundries.

However, TIFAC has not included Man Power Development in this project for R&D and Innovation Centre for Howrah Foundry Cluster, Jadavpur University.

The R&D and Innovation Centre for Howrah Foundry Cluster was inaugurated on the 26<sup>th</sup> of December, 2008 by Dr. R. Chidambaram, Principal Scientific Adviser to the Govt. of India and Chairman, TIFAC.



## Annual Report 2020-2021

### ABOUT THE NODAL CENTRE:

- **Casting Simulation Laboratory**

A laboratory equipped with the state of the art computational facilities including advanced casting simulation platforms such as ProCast and advanced solid modeling software namely ProE are being extensively used right from the stages of product inception to its production stage encompassing all the sequential stages of modeling, simulating, analyzing and decision making phases of product development and deployment in industrial application.

Advanced training on the CAD software PRO-E and casting simulation software PRO-CAST have been imparted to the project staff for honing their skill for simulation projects. Facilities acquired have been utilized for solid modeling and simulation of casting process. Some important casting simulation jobs had been completed and some more are already in the pipeline.

The incorporation of casting simulation for the above components have resulted in a substantial improvement of production.

The different colours shown above correspond to different temperature zones during solidification of molten metal in the mould.

Till now we have completed casting simulation jobs of the following foundries

- |                                       |          |
|---------------------------------------|----------|
| i. Sett Iron Foundry                  | One Job  |
| ii. Techno Aid Private Limited        | Two jobs |
| iii. Hindustan Engg. Industries       | One job  |
| iv. Bharat Engg. Works                | Two jobs |
| v. Calcutta Iron Udyog                | One Job  |
| vi. Kejriwal Castings Private Limited | One job  |
| vii. Govind Steel Company Limited     | One job  |

- **Other laboratories such as laboratory for Chemical Analysis, Metallurgical / Metallographic Testing and Mechanical Testing:**

The Nodal Centre is now fully equipped to take up the following Design and Testing Assignment:-

- 1) Metallography including In-Situ Metallography of casting at the foundry through Leica DMIL Metallurgical Microscope of German make and Apollo make In-Situ Kits.
- 2) NDT-Portable Dynamic Hardness Tester of Askib Engineers Pvt. Ltd. Make Hardness Testing Machine.
- 3) Hardness, U.T.S, Y.S. P.S & Elongation through Fine Testing make 20 Ton UTM.
- 4) Chemical Analysis facilities using Strohein Apparatus etc.

We have been receiving samples for Metallographic Analysis on regular basis from M/s Dhar & Company Private limited and M/s Calcutta Springs Limited. We expect few more foundries would response soon for testing on regular basis for their export oriented job. Testing facilities through UTM and Hardness testing machine have already been utilized by two foundries and expect to receive good response from other foundries also soon.

### MOBILE CASTING CLINIC:

The mobile casting Clinic, inaugurated on 30 April, 2009 at Jadavpur University by Prof. P. N. Ghosh, Vice Chancellor, Jadavpur University has become functional on regular basis from July 2009. The Mobile Casting Clinic is provided with sand testing equipments as well as temperature measuring device combined with carbon equivalent analyzer.

An expert also accompanies the Mobile Casting Clinic who advises the industry regarding the reasons and remedies of the routinely encountered defects. Mobile Van moves along a route predetermined route by the Foundry Association for carrying our sand testing at nominal rates. Mobile Casting Unite has received an overwhelming response from foundries indicating and justifying its timely introduction.

In order to enhance the awareness of Howrah foundries regarding the need for quality control & product diversification, 8 No's seminars (Four in Howrah region & four in Jadavpur University campus) have been organized in collaboration with

- Indian Foundry Association

## Annual Report 2020-2021

- Howrah Foundry Association
- Indian Institute of Metals
- Institute of Indian Foundrymen

Sustained efforts made by the Mobile Casting Clinic for carrying out sand testing at Howrah Foundry Cluster have improved quality awareness of many foundries and as a result some foundries have developed their own sand testing laboratories for quality check up on regular basis.

- **The following test facilities through mobile casting clinic are available:-**

- Determination of Moisture Content
  - Permeability Test
  - Mould Hardness Test
  - Core Hardness Test
  - Green Compressive Strength Test
  - Compact ability Test
  - Determination of AFS Grain Fineness No.
  - Determination of Total Clay Content
  - Determination of Active Clay Content
  - Determination of Loss on Ignition Content
  - Carbon Equivalent, Carbon %, Silicon % and Temperature Measurement
  - Consultancy Facility also available on request-manufacture of high phosphorous cast iron Rly brake block from cupola metal has been optimized and demonstrated in a Howrah Foundry shop.
- It is worth mentioning that Indian Foundry Association in their 62<sup>nd</sup> annual general meeting held on 29 October, 2013 has appreciated our services and support received through mobile casting clinic for improving quality and advised IFA foundry owners to utilize the facilities.

**TOTAL REVENUE GENERATED THROUGH MOBILE CASTING CLINIC Rs. 12, 11,650.00 (RUPEES TWELVE LAKHS ELEVEN THOUSAND SIX HUNDRED FIFTY ONLY).**

- **Consultancy services through Mobile Casting Clinic:**

- Manufacture of high Phosphorous cast iron Rly brake block from cupola metal has been optimized and demonstrated in a Howrah foundry shop.
- Proposal for production of graded cast iron (FG 260) have been submitted to two interested foundries for final acceptance.

- **Inauguration of the R&D and Innovation Centre Building with laboratory facility:**

- The R&D and Innovation Centre Building with housing all the laboratories had been inaugurated on 6 January, 2012 by Dr. Anil Kakodkar, Chairman TIFAC and Homi Bhabha Chair Professor-DAE. The building is complete with laboratory facility such as sand testing laboratory, Metallurgical & NDT laboratory, Chemical laboratory and Casting Simulation laboratory. Each laboratory is housed with sophisticated testing machine.

- **Modification of Divided Blast Cupolas at the Howrah Foundry Cluster :**

- In continuation to the main project R&D and Innovation Centre for Howrah Foundry Cluster, TIFAC, DST sponsored Jadavpur University an extended project vide. their sanction letter dt. 08.03.2010 to go ahead with the modification of five numbers divided blast cupola furnace as recommend by their MSME Apex Committee with an objective of energy economy by reduction of coke rate.
- R&D and Innovation Centre for Howrah Foundry Cluster, Jadavpur University approached eleven foundries who initially had shown interest at Howrah Foundry Cluster to carry out modification of their existing cupola are namely
- Santi Iron & Steel Company
- Dhang's Iron Foundry
- Baba Taraknath Iron Foundry
- Shree Shyam Iron Foundry
- K L Parui Iron Foundry

## Annual Report 2020-2021

- Ragunath Iron Foundry
- Dee Gee Industries
- Super Iron Foundry
- Shree Om Iron Foundry
- The Salkia Small Industries
- M. H. Iron and Steel Works
- The time frame required for this modification will be 10/15 days and it is only possible for Howrah Foundry cluster to adjust this time bound programme either during Bengali New Year holidays or Puja holidays.
- The first foundry who had shown interest was Santi Iron & Steel Company and thereafter Dhang's Iron Foundry, Baba Taralnath Iron Foundry and others. Out of this eleven foundries, six number foundries namely
  - Dhang's Iron Foundry
  - Shree Shyam Iron Foundry
  - K L Parui Iron Foundry
  - Super Iron Foundry
  - Dee Gee Industries
  - Shree Om Iron Foundry
- Responded their acceptance in writing where we visited also along with our expert & fabricator to have site inspection and taking measurement for designing of DBC modification. But later on finally three number foundries namely
  - Dhang Iron Foundry
  - Shree Shyam Iron Foundry
  - Super Iron Foundry
- Came forward and sought modification only of their existing divided blast cupola, but rest did not respond.
- The reasons what we understand are primarily because, their allotment of plot have almost finalized for shifting their existing set up to Foundry Park at Ranihatani organized by IFA against their investment through membership and as they have to shift their existing set up soon, they don't to go for any additional expenditure right now. Secondly, may be due to scarcity of fund for initial investment towards modification cost. But still out of all above foundries Shree Om Iron Foundry said they may finally contact us for the same.
- The performance of all the three foundries after DBC modification looks quite satisfactory and could become much more energy efficient as there have been
  - i) Reduction in coke consumption around 30%.
  - ii) Appreciable reduction in Spm level.
  - iii) Improvement in melting rate & production.
  - iv) Reduction in electricity, fuel and labour cost.
- **Documentary film on Howrah foundry cluster:**

An extended project of R &D and innovation Centre for Howrah Foundry Cluster a film highlighting the practices followed & need for improved operation and ideal foundry practices to be followed have been produced already.

The dubbing of the film in Hindi as well as in Bengali have also been completed. The CD for all the above films also has been made.
- **Report on the National Conference on “The Emerging Trends in Automotive Engineering 2020 (NCETAE 2020)”:**

The school of Automotive Engineering organized two-days 1<sup>st</sup> National Conference on The Emerging Trends in Automotive Engineering 2020 (NCETAE 2020). The date of the conference was 3-4 March 2020 in Jadavpur University, Kolkata, India. This conference is fully funded by RUSA 2.0. The main focus of the conference was to provide a common platform among the researchers and industry people to share and exchange their views on the present day scenario on the automotive engineering and its

## Annual Report 2020-2021

industrial aspects. This conference brought the leading experts all over the country to discuss and share their innovative ideas on research and its development in the frontier thrust areas of automotive engineering. It provided a platform for the exchange of knowledge and recent issues and also look for significant contributions to advanced studies in theoretical and practical aspects. Major thrust areas were identified as

- Mechatronics in Automotive Engineering
- Alternative Fuels for Automobiles
- Electric and Hybrid Vehicles
- Any other challenges related to automotive engineering.

At this conference, papers were contributed from across the country. In total about 45 contributed papers were received. The referee evaluated each paper submission and about 38 of these are accepted for presentation. Accordingly, Six numbers Keynote Sessions and Four Technical Sessions were organized during these two days. Based on the technical contents of the accepted contributed papers, the technical sessions were divided under four categories, namely, FUEL & COMBUSTION, AUTOMOTIVE ENGINES, ELECTRIC VEHICLES AND MATERIALS and MISCELLANEOUS TOPICS.

### **FUTURE EXTENSION PROJECTS FOR R&D AND INNOVATION CENTRE FOR HOWRAH FOUNDRY CLUSTER:**

The following future extension projects have been outlined and are presented to DST, TIFAC for their approval:

1. Identification and Introduction of value added products with higher project margins for the Howrah Foundries. This is essential for the Howrah Foundries to survive.  
**Terms of Reference of the above work.:**
  - a) Manufacturing of value added products.
  - b) Technology requirement for the products.
  - c) Technology source for the products.
  - d) Cost of Technology for the products.
  - e) Lead time for the foundries for Technology adaptation (Switch over time).
2. **Introduction of Low Cost Automation for different processes in the Foundry. The areas where such automation is required:**
  - a) Charging of the Cupola Furnace.
  - b) Casting process used by the foundries.**Terms of Reference:**
  - a) Manufacturing of value added products.
  - b) Technology requirement for the products.
  - c) Technology source for the products.
  - d) Cost of Technology for the products.
  - e) Lead time for the foundries for Technology adaptation (Switch over time).
3. **Optimization of Cupola Design for Achieving:**
  - a) Best Combustion Rate.
  - b) Highest Melt/Coke ratio.
  - c) Lowest pollution.
  - d) Lowest energy consumption.**For the above, the following is required.:**
  - a) Optimization of Air Blast System.
  - b) Maximization of Combustion efficiency by Maximum Heat Transfer during Combustion.A team of experts from Academic institution & Industries shall be formed for achieve the above.
4. Survey of the status of Technology and Quality issues in Aluminium foundries in and around Howrah. As per the recommendation of the Monitoring Committee in the last meeting dated 11 July, 2016,

## Annual Report 2020-2021

the R&D Centre is preparing the close the project. The project staff is being paid and contingency expenses are being met from the accumulated earnings of the R&D Centre.

Our current activities include:-

- a) Periodic visits to Howrah Foundries for sand and metal testing on call.
- b) Assistance in the development of ductile iron casting through metallographic examination of samples and offer of necessary technical advice.

### BIOSCIENCE & ENGINEERING

Phone: 033-2414-6567

033-2457-2316

Director: Dr. Piyali Basak

E-mail: dir.bioengg@jadavpuruniversity.in

#### 1. Vision and Mission of the School :

- A. **Vision:** To become a globally recognized school of higher learning and interdisciplinary research through continuous exploration and growth with an intention to produce quality postgraduate engineers and young scientists in the field of Biological Sciences with special emphasis on Biomedical Engineering.
- B. **Mission:** To spread and exchange basic and latest knowledge in the area of Biomedical Engineering through multidisciplinary teaching, cutting edge research and Disseminating application-oriented research findings for the fulfillment of educational and societal needs for the betterment of mankind.

#### 2. Academic Activities:

##### F. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Biomedical Engineering	2	1 <sup>st</sup> year	13
		2 <sup>nd</sup> year ...	12

#### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
2 (2 Vacant)	1 (Vacant)	3 (1 Vacant)	2

#### 4. Research Activities:

##### A. Areas of Research Activities : (Broad Areas)

Application of various branches of Engineering towards solutions of Bio-Science and Health related problems for the benefit of mankind. Current research activities include but not limited to following:

- i. Biomedical Instrumentation including development of Biomedical Sensors and Signal Conditioning Systems. Advanced Material for High Energy Imaging Devices etc. including their applications in Design of Bio-Implants
- ii. Medical Imaging and Image Processing. Analysis and Processing of Biomedical Signals for Diagnosis and Therapy including applications involving Mathematical Modeling, Human Computer Interfacing, Artificial Intelligence, Rehabilitation Engineering etc.

## Annual Report 2020-2021

- iii. Biomaterials. Development and characterization of Bio-polymers in different form include membranes, nano-particle etc. which can be used as Bioactive Coatings, wound dressing. Evaluate Bio-Degradability and Drug Delivery property of different biopolymers. Biocompatibility testing including hemo-compatibility testing, cytotoxicity testing, MTT assay etc. Tissue Engineering.
- iv. Bioremediation of industrial waste by using microbial consortium.
- v. Development of different drug from natural sources.
- vi. Biomechanics related to Soft and Hard Biological Tissues, Bio-Fluids, and Application of Finite Element Methods for analysis & Design of Biomechanical Systems.
- vii. Bio-informatics, In-silico analysis for assessment of action of different material, system.

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
2	2

### D. Research Articles Published in Journals during the year : (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

1. Podder S, Paul S, Basak P, Xie B, Fullwood NJ, Baldock SJ, Iang Y et al.; Bioactive silver phosphate/polyindolenanocomposites.; RSC Advances; 10 (19); 11060-11073; 2020.
2. Adhikary T, Chowdhury MH, Mallick S, Paul S, Banerjee N, Basak P.; Revisiting Therapeutic Potentials of Ethanolic Extract of Curcuma longa L. rhizomes to Evaluate wound Healing Progression upon Topical Application of its Ointment; Indian Journal of Pharmaceutical Education and Research; 54 (4); 1-10; 2020.
3. Sohini Sen, Shaunak Ghosh, Sayantan De, Piyali Basak\*, Praveen Maurye, Nandan Kumar Jana, Tapan Kumar Mandal; Immunomodulatory and antimicrobial non-mulberry Antheraea mylitta silk fibroin accelerates in vitro fibroblast repair and regeneration by protecting oxidative stress; RSC Adv., 11(31), 19265-19282, 2021
4. Sohini Sen, Anindya Haldar, Piyali Basak\*, Nandan Kumar Jana; Biocompatibility and cytotoxicity evaluation of isophoronediiisocyanate based polyetherurethane for biomedical applications; *Materials Today: Proceedings*, 43, 947-953, 2021
5. Pratik Das, Ranabir Majumder, Mahitosh Mandal, Piyali Basak, In-Silico approach for identification of effective and stable inhibitors for COVID-19 main protease (Mpro) from flavonoid based phytochemical constituents of Calendula officinalis. Journal of Biomolecular Structure and Dynamics, 39(16), 6265-6280, 2020
6. Pratik Das, Suvendu Manna and Piyali Basak, Analyzing the effect of environmental factors (Temperature and Humidity) on the outspread of COVID-19 around the Globe. Ecology, Environment and Conservation, 27(February Suppl. Issue), 386-394, 2021.
7. Suvendu Manna, Pratik Das, Piyali Basak, Amitkumar Sharma, Vishal Kumar Singh, Ravi Kumar Patel, Jitendra Kumar Pandey, Veeramuthu Ashokkumar, Arivalagan Pugazhendhi; Separation of pollutants from aqueous solution using nanoclay and its nanocomposites: A review; Chemosphere, 280;130961; 2021.
8. Imon Chakraborty, Chowdhury Mobaswar Hossain, Piyali Basak; Synthesis and characterization of ester-diol based polyurethane: a potentiality check for hypopharyngeal tissue engineering application; Biomedical Engineering Letters; 11(1); 25-37; 2021.
9. Piyali Das, Rutusmita Mishra, Bavya K Devi, Kanike Rajesh, Piyali Basak, Mangal Roy, Partha Roy, Debrupa Lahiri, Samit Kumar Nandi; Decellularized xenogenic cartilage extracellular matrix (ECM) scaffolds for the reconstruction of osteochondral defects in rabbits; Journal of Materials Chemistry B, 9; 4873-4894; 2021.
10. Bhuvaneshwaran Subramanian, Tarun Agarwal, Arpita Roy, Sheetal Parida, Biswanath Kundu, Tapas Kumar Maiti, Piyali Basak, Sujoy K Guha; Synthesis and characterization of PCL-DA: PEG-DA based

## Annual Report 2020-2021

- polymeric blends grafted with SMA hydrogel as bio-degradable intrauterine contraceptive implant; *Materials Science and Engineering: C*; 116; 111159; 2020.
11. Ranabir Majumder, Pratap Parida, Samrat Paul, Piyali Basak; In vitro and in silico study of Aloe vera leaf extract against human breast cancer; *Natural product research*; 34(16), 2363-2366; 2020.
  12. Preetam Guha Ray, Madhurima Das, Meher Wan, Chacko Jacob, Somenath Roy, Piyali Basak, Santanu Dhara; Surfactant and catalyst free facile synthesis of Al-doped ZnO nanorods—An approach towards fabrication of single nanorod electrical devices; *Applied Surface Science*; Applied Surface Science; 512; 145732; 2020.
  13. Samrat Paul, Piyali Basak, Ranabir Majumder, Anwesha Mukherjee, Joydeep Ghosh, Shamayita Patra, Nandan Kumar Jana; Biochemical estimation of Moringa oleifera leaf extract for synthesis of silver nanoparticle mediated drug delivery system; *Journal of Plant Biochemistry and Biotechnology*; 29(1); 86-93; 2020.
  14. “A Novel Methodology to study the Cognitive Load Induced EEG Complexity Changes: Chaos, Fractal and Entropy based approach”, published in **Biomedical Signal Processing and Control, Elsevier, 2020, 102277**
  15. “A python based support vector regression model for prediction of COVID19 cases in India”, published in **Chaos, Solitons & Fractals, Elsevier, 2020, 109942**
  16. “Fractal Dimension and lacunarity based microscopic image texture characterization of coated and non-coated metallic substrates”, published in **Advances in Materials and Processing Technologies, Taylor and Francis Journal**, <https://doi.org/10.1080/2374068X.2021.1903724>, 2021
  17. “Epilepsy Seizure Detection using Kurtosis based VMD’s parameters selection and bandwidth features”, published in **Biomedical Signal Processing and Control, Elsevier, 2020, 102255**
  19. “A novel automated seizure detection system from EMD-MSPCA denoised EEG: Refined composite multiscale sample, fuzzy and permutation entropies based scheme”, published in **Biomedical Signal Processing and Control, Elsevier, 2021, 102514**
  20. “Automated detection of epileptic seizures using multiscale and refined composite multiscale dispersion entropy”, published in **Chaos, Solitons & Fractals, Elsevier, 2021, 110939**
  21. “A computationally efficient automated seizure detection method based on the novel idea of multiscale spectral features”, published in **Biomedical Signal Processing and Control, Elsevier, 2021, 102990**
  22. “An in vitro comparative study of layered-double hydroxide nanoconjugate in the delivery of small interference and short-hairpin ribonucleic acid”, **Bull. Mater. Sci.** (2020) 43:10, <https://doi.org/10.1007/s12034-019-1976-0>

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Piyali Basak, Tathagata Adhikary, Pratik Das, Moumita Shee, Tanusree Dutta, Shreya Biswas, Samrat Paul, Subhendu Manna. Cellulases in paper and pulp, brewing and food industries: Principles associated with its diverse applications (Chapter 13); *Current Status and Future Scope of Microbial Cellulases*, Deepak K. Tuli and Arindam Kuila (eds.), 275-293, ISBN 978-0-12-821882-2, Elsevier, August, 2020
2. Suvendu Manna, Uttariya Roy, Anirban Biswas, Shubhalakshmi Sengupta, Piyali Basak, Papita Das; Review on Trends in the Removal of Pharmaceuticals and Personal Care Products (PPCPs) from Water and Wastewater; *Contaminants in Drinking and Wastewater Sources*; Kumar M., Snow D., Honda R., Mukherjee S. (eds.); 225-250; Springer, Singapore; 978-981-15-4598-6 (Print), 978-981-15-4599-3 (Online); 2021
3. Tathagata Adhikary, Piyali Basak; *Interdisciplinary Approaches Incorporating Computational Intelligence in Modern Pharmacognosy to Address Biological Problems*; *Electronic Systems and Intelligent Computing*; Mallick P.K., Meher P., Majumder A., Das S.K. (eds); 11-19; Springer, Singapore; 978-981-15-7030-8 (Print), 978-981-15-7031-5 (Online); 2020.
4. **Book Chapter**, “Biodegradable Synthetic Polymer Based Cardiac Patches: A Journey So Far”, **Accepted** in *Encyclopedia of Materials: Plastics and Polymers, Elsevier*

## Annual Report 2020-2021

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Tathagata Adhikary, Piyali Basak; Interdisciplinary Approaches Incorporating Computational Intelligence in Modern Pharmacognosy to Address Biological Problems; *Electronic Systems and Intelligent Computing*, pp 11-19; Springer, Singapore; 978-981-15-7031-5; 23 September 2020.
2. Abhirupa Saha, Sanjib Sil, Srikanta Pal, Bhaskar Gupta, Piyali Basak; Meta Sensing Ovarian Cancer Cells at THz from C Band Radiation Biophysics; *Advances in Smart Communication Technology and Information Processing: OPTRONIX 2020*; 111-122; Springer Singapore; 978-981-15-9432-8 (Print), 978-981-15-9433-5 (Online); 2021.
3. Abhirupa Saha, Piyali Basak, Bhaskar Gupta, Sanjib Sil, Srikanta Pal; Metasurface aided Biophysical Differentiation of Radiated Cancer Cells: C band to THz perspective; *2020 IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT)*; 1-6; IEEE; 978-1-7281-6828-9 ; 2020.
4. Dalia Acharjee, Mayukh Das, Sujan Krishna Samanta, Piyali Basak, Sukumar Roy; Study on Structure and Properties of Crystalline Hydroxyapatite obtained from Biological and Synthetic Sources; *2020 IEEE 1st International Conference for Convergence in Engineering (ICCE)*; 395-398; IEEE; 978-1-7281-7340-5 ; 2020.
5. “Dispersion Entropy for the Automated Detection of Epileptic Seizures”, published in *2020 IEEE 15<sup>th</sup> International Conference on Industrial and Information Systems (ICIIS)*, 26-28 Nov. 2020, Organized by Indian Institute of Technology, Ropar, Rupnagar, India
6. “CT Based Histogram Assisted Emphysema Severity Quantification”, published in *6<sup>th</sup> IEEE International Conference for Convergence in Technology (I2CT)*, April 02-04, 2021
7. “Fractal Characterization of Auditory Evoked Potentials”, published in *2020 IEEE Sixth International Conference on Biosignals, Images and Instrumentation, SSNCE, Chennai, ICBSII 2020*, Department of Biomedical Engineering SSN College of Engineering Chennai
8. “Optimal filtering of Single channel EEG Data using Linear Filters”, published in *2020 IEEE Sixth International Conference on Biosignals, Images and Instrumentation, SSNCE, Chennai, ICBSII 2020*, Department of Biomedical Engineering SSN College of Engineering Chennai
9. “Fractal Characterization of ECG signals: Indian Classical Music as stimulus”, published in *2020 IEEE Sixth International Conference on Biosignals, Images and Instrumentation, SSNCE, Chennai, ICBSII 2020*, Department of Biomedical Engineering SSN College of Engineering Chennai
10. “NARX-Wavelet Based Active Model for Removing Motion Artefacts from ECG”, *IEEE-International Conference on Computer, Electrical and Communication Engineering, Techno India University, Kolkata, ICCECE-2020*
11. “Contrast Enhancement of MRI Images using Histogram Equalization Techniques” in the *IEEE International Conference on Computer, Electrical and Communication Engineering (ICCECE)*, 2020.

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
Piyali Basak	Online Faculty Development Programme ‘Mentoring Pedagogy and Research Methodology for Teaching’	Online-IIT:Guwahati	08-13 March, 2021



## Annual Report 2020-2021

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Piyali Basak	Invited Lectures	Webinar on Polymeric Biomaterials	Online- JIS Institute of Advanced Studies and Research	4 September 2020, 1h.
Piyali Basak	Invited Lectures	"Opportunities in Bioceramic Materials in Orthopedic, Dental and Tissue Engineering Applications (OBMODTEA 2020)"	Webinar series- Department of Ceramic Engineering at NIT Rourkela	25- 29 September, 2020; 1h on 28 September, 2020.
Piyali Basak	Invited Lectures (Keynote Speaker)	"International Conference on Science and Technology for Celebrating the Birth Centenary of Bangabandhu (ICSTB-2021)"	Online-at BCSIR, Dhaka	11-13 March, 2021; 25min on 13 March 2021 (Saturday).

### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Sohini Sen (RS)	Biocompatibility and cytotoxicity evaluation of isophoronediiisocyanatebased polyetherurethane for biomedical applications.	International Conference on Advanced Materials Behavior and Characterization	Chennai, India	18 – 22 July; 2020

### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Sohini Sen (RS)	(Course) Hands on Training in Liquids Chromatography-Mass Spectrometry (LC-MS)	Indian Institute of Chemical Biology, Kolkata	15 March-26 March, 2021

### 6. Major Achievements of the School during the year:

#### B. Any other Honours received by the Faculty Members

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
PiyaliBasak	Global Teacher Award 2020	AKS education Awards	Online- Gurgaon, NCR, India
Piyali Basak	InSc Research Excellence Award 2020	Institute of Scholar	Karnataka

#### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Samrat Paul (RS)	InSc Research Excellence Award for Published Article.	Institute of Scholar	Karnataka

## Annual Report 2020-2021

### D. Any Other Major Achievements:

#### Few honour received by Prof. Manisha Chakraborty:

1. **Volume Editor**, of the 2<sup>nd</sup> Edition of Comprehensive Materials Processing (CMP), Compendium, Oxford: Elsevier
2. **Member of the Board** constituted for the Digital Healthcare Program of the University under the Centre for Digital Healthcare Technology, MAKAUT, WB
3. **Panelist in the Researcher Forum 2021** held online on March, 04, 2021 Organized by Clarivate Web of Science
4. The poem “Moner Sathé” is published in the Magazine, Progoti 2020, 59th year Eid Shonkolon and the news regarding the release of the Magazine, Progoti 2020, 59th year Eid Shonkolon came up in page number 8 of the Weekly Newspaper, Natun Goti, 10th-16th August, 2020
5. Rendered Rabindrasangeet during the Cultural Programme on “Women Empowerment” on 4th October, 2020 in the channel Vision Bengal
6. Five Bengali Poems are published in page number 10 of Sharodiya Shonkhya, 2020 of Lekhalekhi Saradin Newspaper. The discussion on this Sarodiya Shonkhya was published in the Newspaper Banglar Jonorob where my five poems got appreciations
7. The Bengali poem “Agomoni” is published in Sharodiya Shonkhya of the Newspaper Banglar Jonorob
8. Rendered Rabindrasangeet on invitation by the Organizers at Krishnopodo Ghosh Memorial Trust Hall organized by Idaning Natyagoshti. My Rabindrasangeet rendition got place in the Newspaper Jugoshankhya on 27.02.2021 and My Rabindrasangeet rendition also got place in the Newspaper Banglar Jonorob on 27.02.2021. Her Rabindrasangeet rendition and Her photograph got place in the Newspaper Natun Gati Weekly (March 1st to 7th, 2021).
9. Rendered Nazrulgeeti (inaugural song), Rabindrasangeet and recited one of her poems on invitation by the Editor of the Newspaper, Natun Goti during the program at Iran Society Hall. Her photograph while singing the opening song (Nazrulgeeti) in the program at Iran Society Hall got place in the Newspaper Natun Gati Weekly (March 1st to 7th, 2021).
10. Panelist in LIVE Program “Antorjatic Sahitya Onusthan” organized by the Newspaper Banglar Janorob, and the news regarding this program came up in the newspaper Nayathahar, Bengali News and Literary Patrika, Guwahati-Kolkata where her Rabindrasangeet rendition received appreciation and my name got the mention as poet.
11. The Poem “Antardhwani” is published in Podarpon Magazine
12. The poem “Durotyo” is published in the Magazine, “Sahitya Adda” of Zero Point Publication

### 8. Students Progression during the year:

#### A. Progression to Higher Studies:

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
1		PhD-Project	IIT-KGP

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
Any Other	Company job (1)

## Annual Report 2020-2021

### COGNITIVE SCIENCE

Phone : 033-2457-2357

Director : Dr. Amrita Basu

E-mail : [dir.cognitive@jadavpuruniversity.in](mailto:dir.cognitive@jadavpuruniversity.in)

#### 1. Vision and Mission of the School:

**A. Vision:** The mission of School of Cognitive Science committed to generating, disseminating and preserving knowledge, and to working with others to bring this knowledge to provide sustainable solutions.

We seek to develop in each member of the School of Cognitive science the ability and passion for working wisely, creatively, and effectively for the betterment of humankind.

**B. Mission:** The School of Cognitive Sciences at Jadavpur University is committed to the wellbeing of all members of our community. We aim to honour the diversity of this community in all its forms, including disciplinary training, socioeconomic status, cultural identity, gender identity, religion, disabilities (visible and invisible), neurodiversity, age, political views, family status, etc.

We strive to create an interdisciplinary, cooperative and congenial environment to promote solutions to everyday challenges and inspire research in interface areas of science, technology and social sciences.

Our commitment is to develop innovative sustainable solutions challenges in the field of brain and cognitive sciences.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M.PHIL	2	1 <sup>st</sup> year	3
		2 <sup>nd</sup> year	2
Ph.D.	5	2020-21	0

#### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
		01	01

Number of Associated Faculty Members					Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	Emeritus Professor	Visiting Professor	
			01	01	02

## Annual Report 2020-2021

### 4. Research Activities

#### A. Areas of Research Activities :(Broad Areas)

Prof. Amita Chatterjee: Philosophy of Cognition, Logical reasoning and decision making

Prof. Mihir Chakraborty: Reasoning and logic,

Prof. Lopamudra Choudhury: Reasoning and logic, Cognition and perception

Dr. Amrita Basu: Neurobiology of language, Understanding Scene, illusion perception, complexity cognition

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
02	05

#### D. Research Articles Published in Journals during the year (International/National Peer- reviewed journals)

1. **Chakraborty, M. K.**, Jana, P., Fuzzy  $\alpha$ -cut and related mathematical structures, Soft Comput, (2020), <https://doi.org/10.1007/s00500-020-05131-z>.
2. **Chatterjee, A.**, Sarukkai, S., 'Logic in India', Handbook of Logical Thought in India, 2020
3. **Chatterjee, A.**, 'Gadadhar Bhattacharyya', Bloomsbury Encyclopedia of Philosophers, India 1500-2000 , S.R. Bhatt, 2020
4. **Chatterjee, A.**, 'The Role of ICT in Higher Education in India', Quality Mandate for Higher Education Institutions in India, University Grants Commission, pp. 58-78, Article No. 4 ISBN 978-81-948355-5-4, February 2021
5. **Chakraborty, M. K.**, Jana, P., Fuzzy  $\alpha$ -cut and related mathematical structures, Soft Comput, (2020), <https://doi.org/10.1007/s00500-020-05131-z>.
6. **Chakraborty, M. K.**, Basu, Sankha S., Restricted Rules of Inference and Paraconsistency, Logic , Jour. of IGPL .

#### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, page no., Name of the Publisher, Year)

1. **Chatterjee, A.**, 'Can Western logicians imbibe anything from Indian logicians?', International Conference on The Relevance of Indian Philosophy: a new Paradigm of Philosophy, Ramakrishna Mission Institute of Culture, Golpark, Kolkata, 2020
2. **Chatterjee, A.**, Sarukkai, S., 'Logic in India', Handbook of Logical Thought in India, 2020
3. **Chatterjee, A.**, 'Gadadhar Bhattacharyya', Bloomsbury Encyclopedia of Philosophers, India 1500-2000 , S.R. Bhatt, 2020
4. **Chatterjee, A.**, 'The Role of ICT in Higher Education in India', Quality Mandate for Higher Education Institutions in India, University Grants Commission, pp. 58-78, Article No. 4 ISBN 978-81-948355-5-4, February 2021.

#### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration

**Annual Report 2020-2021**

<b>Prof. Amita Chatterjee</b>	Maushumi Guha	Department of philosophy, Jadavpur University	Research on Information Ethics, outcome: publication and Ph.D. research	5 years (2017-2021)
<b>Prof. Amita Chatterjee</b>	Professor Rahul Banerjee, Professor Pritha Mukherjee	Department of Atomic Physics Saha Institute Nuclear Physics, Department of Pure Psychology, University of Calcutta	Joint research collaboration. Outcome: Publication of a Text book on Psychology and Meditation	3 years till December 2021.
<b>Prof. L. Choudhury</b>	Dr. Gem Stapleton	Cambridge University	Joint research	continuing
<b>Prof. L. Choudhury</b>	Jim Burton	University of Brighton	Joint research	continuing
<b>Dr. A. Basu</b>	Andrew Blake	University of Brighton	Joint research	continuing
<b>Dr. A. Basu</b>	Gem Stapleton	Cambridge University	Joint research	continuing

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year**

**A. Books/Monographs Published :**

**Chakraborty, M. K.,** Dutta, S., Theory of Graded Consequence : A General Framework for Logics of Uncertainty, Springer, eBook ISBN: 978-981-13-8896-5, DOI: 10.1007/978-981-13-8896-5 (2019).

**C. Seminar/Workshop/Conference/Symposium Organized:**

**(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)**

ICIS 2020 , November, 2020 , Co- Chair and Co-Editor of the Proceedings , Published by Springer

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Amita Chatterjee</b>	Invited Lecture	National Conference on AI & Perception Engineering	Online, CEERI Pilani	One day, 30 July, 2020
<b>Dr. Amrita Basu</b>	Invited lecture	National Conference on AI & Perception Engineering	Online, CEERI Pilani	One day, 30 July, 2020
<b>Prof. Mihir Chakraborty</b>	Invited lecture	Philosophy of Mathematics (in Bangla )	Paschimbanga Ganit Parishad,	22 November, 2020

## Annual Report 2020-2021

<b>Prof. Mihir Chakraborty</b>	Invited lecture	Zoom meeting (national level) on the philosophy of mathematics , Organized by Dr. Subhasis Chakrabarti.	Online	Dec. 9, 2020,
--------------------------------	-----------------	---	--------	---------------

### G. Papers presented in Seminar/Workshop/Conference/Symposium:

1. Chakraborty, M. K., Paraconsistency : Some basic issues, Paraconsistent Logic Pre-Conference Workshop, ICLA, March 1–5, 2019, Indian Institute of Technology Delhi.
2. Chakraborty, M. K., Plenary Talk, IJCRS 2019, Debrecen, Hungary

### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

1. Chatterjee, A., 8th Indian School on Logic and its Applications - A Virtual School, <https://sites.google.com/iiserb.ac.in/isla-2020-virtual>, 18 -23 December 2020.
2. Chatterjee, A., 7th Annual Conference of Cognitive Science, <https://sites.google.com/view/accs7>, 23-25 January 2021.

## CULTURAL TEXT & RECORDS

Phone : 033-2414-6681

2457-2943/2631

Director: Prof.Samantak Das

Joint-Director: Prof.Abhijit Gupta

E-mail: dir.ctr@jadavpuruniversity.in

### 1. Vision and Mission of the School:

#### A. Vision:

The School of Cultural Texts and Records was formally set up in August 2003, and began functioning in January 2004 after allocation of space and funds. It has a broad and open-ended agenda of documenting, processing and studying the textual basis (both verbal and audio-visual) of human society and cultural life in the widest sense.

#### B. Mission:

Documentation and digitisation of endangered cultural material  
Electronic editing and software development  
Research and training in the related fields  
Strengthening collaboration among institutions with similar interests  
Managing the largest archive of North Indian Classical Music and archiving other musical genres, musical activities in Bengal.

## Annual Report 2020-2021

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
UGC approved PG diploma course(1 Year) Digital Humanities and Cultural Informatics (DHCI)	2019-2020	6 <sup>th</sup> Year	19
Certificate Course in Editing and Publishing	Jan, 2020-May, 2020	17 <sup>th</sup> Year	42
Certificate Course in Editing and Publishing	March, 2021-July, 2021	18 <sup>th</sup> Year	81

### 4. Research Activities:

#### A. Areas of Research Activities: (Broad Areas)

Digital Archiving  
Digital Humanities  
Documentation  
Textual Editing

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Shabdakalpa	Departmental	Sukanta Chaudhuri, Professor Emeritus, Department of English	Hirendra Nath Datta Foundation	1 year +
Two centuries of Indian Print	Departmental	Abhijit Gupta, Department of English	British Library	2016-Ongoing
Famine tales from India and UK	Departmental	Samantak Das, Department of Comparative Literature, Abhijit Gupta, Department of English, Sujit Kumar Mandal, Department of Comparative Literature	AHRC	November, 2019-October 2021
Digitisation of Annual Reports of Calcutta School of Tropical Medicine for 'Western Medicine and Indigenous Society: History of Disease, Medicine and Public Health Policy in Colonial Eastern India, 1757-1947.	Departmental Collaboration	Professor Suranjan Das, VC, Jadavpur University	Wellcome Trust, UK	3 Months

## Annual Report 2020-2021

Songs of the Old Madmen: Recovering Baul Songs from the Note-Books of 19th and 20th Century Bengali Saint-Composers	Departmental Collaboration	Dr. Carola Lorea, Research Fellow, National University of Singapore, Asia Research Institute	EAP: 1247, British Library Endangered Archive Programme	1 year
---	----------------------------	--	---	--------

**C. Doctoral Research Activities:**

<b>Number of students awarded Ph.D during the year</b>	<b>Number of Ph.D students registered in the School</b>
0	5

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:**

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
<b>Purbasha Auddy, PhD Scholar</b>	“Sarojini”: An imagined woman in Bamabodhini Patrika’	International webinar on Defining Womanhood through Times of Crises: Literary and Cultural Responses organised by Women’s College	Kolkata	September 12-13, 2020
<b>Reesoom Pal, Ph.D Scholar</b>	The Subcontinental Expeditionist in The Himalayan Journal, 1929-1964	Jadavpur-Exeter Seminar Series 2020	Kolkata-Exeter	October 20, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:**

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Suchismita Ghosh, PhD Scholar	Certificate Course in Book Publishing, National Book Trust	Online	February-May 2021

**6. Major Achievements of the School during the year:**

**C. Awards received by Research Scholars/students:**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Purbasha Auddy, PhD	Research Development grant for BIPOC scholars, 2020	Society for the History of Authorship, Reading and Publishing (SHARP)	

**7. Extension Activities of the School during the year:**

**A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

British Library, London  
National University of Singapore, Asia Research Institute



## Annual Report 2020-2021

University of Exeter, UK

Victoria Memorial

### SCTR collections accessed by:

- Letters and interviews: WB Government for their commemorative volume on Satyajit Ray
- Sankho Chaudhuri papers: Kala Bhaban, Visva-Bharati
- Other collections: Researchers, Jadavpur University Press (Publications)

### B. Activities for the Society:

YouTube lectures:

Music archive lecture series

- Special Lecture on 'Decolonising Tribal Studies in India', delivered by Prof. Virginius Xaxa
- "Revisiting Hul - The Santal Rebellion of 1855-56" to commemorate the Anniversary of the Santal Hul on 29-30th June, 2020 on behalf of the RUSA Project "Resource Mapping the Early Recordings of Traditional Santali Songs".
- An online special Lecture by the eminent Sarod player of Senia Maihar Gharana, Pt. Anindya Banerjee – on July 10, 2020 at 7 pm (IST) over Zoom

## EDUCATION TECHNOLOGY

Phone: 033-2457-2442/2964

033-2414-6129

Director: Prof. Matangini Chattopadhyay

E-mail: [mparekh.edutech@jadavpuruniversity.in](mailto:mparekh.edutech@jadavpuruniversity.in)

### 1. Vision and Mission of the School:

#### A. Vision:

Availability of Quality Education in diverse levels and areas of human learning, adoption of IT and knowledge networking among organizations cutting across the geographical boundaries, and utilization of learning paradigms suitable for our country at affordable costs

#### B. Mission:

Imparting quality education using Digital Distance Education and making available the best educational resources by using the most suitable learning paradigms.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
		1 <sup>st</sup> year	
		2 <sup>nd</sup> year ...	
M. Tech. IT(Courseware Engineering)	2	1 <sup>st</sup> year	27
		2 <sup>nd</sup> year	22
Master in Multimedia Development	2	1 <sup>st</sup> year	13
		2 <sup>nd</sup> year	7

## Annual Report 2020-2021

### 3. Faculty Members in the School:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
2	0	2	3

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

1. Education Technology
2. E-learning / M-learning
3. Distance Education
4. Learning Management System (LMS)
5. Student Tracking and Modelling
6. Intelligent Tutoring System (ITS)
7. Quality Assurance for E-learning / M-learning
8. Computer Aided Language Learning
9. Courseware Engineering
10. Teaching Learning Methodology
11. Web Services and Web Technology
12. Distributed Object Computing
13. Mobile Computing and Application
14. Wireless Network and Security
15. Encryption, Cryptography and Steganography
16. Multimedia Content Based Storage and Retrieval
17. Multimedia Databases and Intelligent Query Systems
18. Multimedia Information Processing (Image, Audio, Video)
19. Pattern Recognition and Computer Vision
20. Biometrics and Medical Imaging

#### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Cosmic Quest	Departmental	Prof. Matangini Chattopadhyay, Principal Investigator, Prof. Samiran Chattopadhyay, Co-Principal Investigator, Dr. Saswati Mukherjee, Co-Investigator	Vigyan Prasar, an autonomous organization under the Department of Science & Technology, Govt. of India, total volume of the project is INR 44 lakhs (approx.)	2019 -2021 (2 years)

## Annual Report 2020-2021

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

- Shilpi Bose, Chandra Das, Abhik Banerjee, Kuntal Ghosh, **Matangini Chattopadhyay**, Samiran Chattopadhyay, Aishwarya Barik, “An ensemble machine learning model based on multiple filtering and supervised attribute clustering algorithm for classifying cancer samples”, accepted for publication in PeerJ Computer Science, 2021
- Pragma Kar, Soumya Banerjee, Sandip Chakraborty, **Matangini Chattopadhyay**, “AutoNotes: A Touch-Free Blink-Based Interactive Model for Generation of Notes from Lecture Videos”, accepted in the Journal of The Institution of Engineers (India) Series B, 2020.
- Shilpi Bose, Chandra Das, Kuntal Ghosh, **Matangini Chattopadhyay**, Samiran Chattopadhyay, “A Framework for Neighbourhood Configuration to Improve the KNN based Imputation Algorithms on Microarray Gene Expression Data”, International Journal of Bioinformatics Research and Applications (IJBRA), Inderscience, Accepted, September, 2020
- Pratik Ghosh, **Joydeep Mukherjee**, “Animal recognition system based on the Combination of Features using Neural Network”, International Research Journal of Engineering and Technology (IRJET), (e-ISSN-2395-0056, p-ISSN-2395-0072), Vol-7, Issue-6, June, 2020.
- Subham Pramanik, **Joydeep Mukherjee**, “Recognition of New Indian Fake Currency based on the Combination of Features using Neural Network”, International Research Journal of Engineering and Technology (IRJET), (e-ISSN-2395-0056, p-ISSN-2395-0072), Vol-7, Issue-6, June, 2020.
- Soham Bhattacharya, **Joydeep Mukherjee** “Recognition of Indian Spices based on the Combination of Features and Comparison using Neural Network”, International Research Journal of Engineering and Technology (IRJET), (e-ISSN-2395-0056, p-ISSN-2395-0072), Vol-7, Issue-6, June, 2020.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

- Susovan Jana, **Ranjan Parekh**, Bijan Sarkar, "Detection of Rotten Fruits and Vegetables Using Deep Learning", in: Uddin M.S., Bansal J.C. (eds) Computer Vision and Machine Learning in Agriculture, part of Algorithms for Intelligent Systems book series, Springer, Singapore. [https://doi.org/10.1007/978-981-33-6424-0\\_3](https://doi.org/10.1007/978-981-33-6424-0_3), pp. 31-49, Springer, 24 Mar. 2021 [ISBN : 978-981-33-6424-0]
- Susovan Jana, **Ranjan Parekh**, Bijan Sarkar, "A semi-supervised approach for automatic detection and segmentation of optic disc from retinal fundus image", in: Janmenjoy Nayak, Bighnaraj Naik, Danilo Pelusi, Asit Kumar Das (eds) Handbook of Computational Intelligence in Biomedical Engineering and Healthcare, pp. 65-91, Elsevier, 16 Apr. 2021 [ISBN : 978-012-82-2260-7]
- Soumili Kundu, **Matangini Chattopadhyay**, “Med-Alert: An Android Application to Increase Adherence to Medication”, Balas V.E., Hassanien A.E., Chakrabarti S., Mandal L. (eds) Lecture Notes on Data Engineering and Communications Technologies, vol 62. Springer, Singapore. <https://doi.org/10.1007/978-981-33-4968-1-36>, 2021

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year)

- Shilpi Bose, Chandra Das, Abhik Banerjee, **Matangini Chattopadhyay**, Samiran Chattopadhyay, “An Ensemble Filtering and Supervised Clustering based Informative Gene Selection Algorithm in Microarray Gene Expression Data”, 4th International Conference on Computational Intelligence and Networks (CINE), IEEE XPlore, 2020, pp. 1-7, doi: 10.1109/CINE48825.2020.234391
- Suparna Dutta, **Saswati Mukherjee**, Susovan Jana, Medha Nag, Sujoy Majumdar, “Dataset Annotation on Chronic Disease Comorbidities Study in Type 2 Diabetes Mellitus”, International

## Annual Report 2020-2021

Conference on Machine Intelligence and Data Science Applications (MIDAS-2020), Next Generation Computing Technology (NGCT) Society, Dehradun, 4 – 5 September, 2020.

- Susovan Jana, **Ranjan Parekh**, Bijan Sarkar, "Automated Sorting of Rotten or Defective Fruits and Vegetables Using Convolutional Neural Network", in Proc. of Int. Conf. on Computational Intelligence, Data Science and Cloud Computing (IEM-ICDC '20), 25-27 September, 2020, Kolkata, India, pp. 43-55 [ISBN : 978-981-33-4968-1]
- Susovan Jana, **Ranjan Parekh**, Bijan Sarkar, "A Holistic Framework for Quality Evaluation of Fruits and Vegetables Suppliers", in Proc. of Int. Conf. on Computational Intelligence, Data Science and Cloud Computing (IEM-ICDC '20), 25-27 September, 2020, Kolkata, India, pp.155-168[ISBN : 978-981-33-4968-1]

### H. Research Collaboration with other Departments/Institutes/Industries:

Joint collaboration with Strategy Academy Centre for Advanced Studies (TSACAS), Kolkata and School of Education Technology, Jadavpur University (SET, JU) for conducting training program titled "Post Graduate Diploma in Management and Entrepreneurship" through live and two-way interactive digital network.

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### A. Books/Monographs Published :

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Ranjan Parekh</b>	Fundamentals of Image Audio and Video Processing using MATLAB (book)	Taylor & Francis (CRC Press)	978-0367895242	2021

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Ranjan Parekh</b>	Invited Lecture	Interdisciplinary Refresher Course in Advances in Digital Education	Online	90 minutes
<b>Ranjan Parekh</b>	Invited Lecture	Crescendo in Pedagogy, Andragogy, and Heutagogy	Online	45 minutes

#### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Prof. Matangini Chattopadhyay	TEQIP-III sponsored National webinar/video workshop on "Transforming Pedagogy in India" organized by NIT Jamshedpur	Online	01 - 03 August, 2020
Mr. Joydeep Mukherjee	5-Day Faculty Development Program on "Internet of Things Security" organized by Department of Computer Science and Engineering of the Maulana Abul Kalam Azad University of Technology, W.B in association with the Islamic University of Science and Technology, Jammu and Kashmir, India	Online	07-11 November, 2020.

## Annual Report 2020-2021

### 6. Major Achievements of the School during the year:

#### D. Any other major achievements

- Prof. Matangini Chattopadhyay acted as a reviewer in the Journal of Institution of Engineers – Series B.
- Four Students have completed their Master’s Thesis under the guidance of Mr. Joydeep Mukherjee in October, 2020.

### ENERGY STUDIES

Phone: 033-2457-2460/2909

Director: Dr. Ratan Mandal

E-mail: [dir.energy@jadavpuruniversity.in](mailto:dir.energy@jadavpuruniversity.in)

### 1. Vision and Mission of the School:

#### A. Vision: Advanced Studies and Research in the field Energy Science & Technology in general, Clean & Safe Energy in particular;

- To provide an intensive education and training in the field of Energy Science & Technology to meet the demand of the Nation.
- To integrate the education to backup the industries and to develop entrepreneur
- To develop the graduate engineers and science post graduates degree holders to cater this specialized inter disciplinary subject to the society

**And translation of knowledge through outreach activities.**

#### B. Mission:

The mission of the School are to initiate and direct towards multidisciplinary research activities involving various departments within the university structure. The major thrust areas of the research activities are concentrated in the field of Renewable Energy, Integrated Energy Systems and Energy Conservation. Subsequently it immersed as an academic unit and from 1995 it started the M.Tech. Programme in Energy Science and Technology under the faculty of Engineering & Technology, with approval from All India Council for Technical Education, University Grants Commission and Ministry of Human Resource Development.

### 2. Academic Activities:

#### G. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M.Tech. in Energy Science & Technology	02	1 <sup>st</sup> year	16
		2 <sup>nd</sup> year ...	16

### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	

## Annual Report 2020-2021

02	00	00	02

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

Bio-Energy, Energy & Environment, Energy Management, Advanced Materials & Solar PV application, Solar Pump, Solar Refrigeration, Opto-electronics materials, Natural Organic semiconducting materials, Bio-mass and bio energy, Renewable Energy Integration, Hybrid energy system etc.

##### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
NIL	11

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No.,Year of publication)

1. Poulami Dutta, **Ratan Mandal**, Sumanta Bhattacharyya, Rajesh Dey & Rudra Sankar Dhar, “Fabrication and characterization of copper based semiconducting materials for optoelectronic applications”, *Microsystem Technologies* (2021), Published: 02 January 2021, <https://doi.org/10.1007/s00542-020-05145-5>
2. Kushal Chakraborty, Alope Kumar Das, **Ratan Mandal**, Dulal Krishna Mandal, “Investigation on the Trap Signature in Organic Semiconductor Turmeric Film Through Current–Voltage Analysis”, *Solid State Communications* 323 (2021) 114080. <https://doi.org/10.1016/j.ssc.2020.114080>
3. Kushal Chakraborty, Alope Kumar Das, **Ratan Mandal**, Dulal Krishna Mandal, “Investigation on the Trap Signature in Organic Semiconductor Turmeric Film Through Current–Voltage Analysis”, *Transactions of Tianjin University* (26th June, 2020), Tianjin University and Springer-Verlag GmbH Germany, part of Springer Nature 2020. <https://doi.org/10.1007/s12209-020-00259-3>.
4. Kunal Chowdhury, **Ratan Mandal**, “Advancement of Schottky barrier solar cells: a review”, *Topics in Intelligent Computing and Industry Design (ICID)* 2(1) (2020) 93-98, *Contemporary Issues in Computing (CIC)*, DOI: <http://doi.org/10.26480/cic.01.2020.93.98>
5. Nabanita Banerjee, **Tushar Jash**, *Waste to Energy Conversion through Biodiesel Production from Waste Cooking Oil and its Optimization*, *Indian Journal of Environmental Protection*, 41(5): 503-512 (2021).

##### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Subhajit Mukherjee, Arijit Ganguly, **Ratan Mandal**, Asoke Kumar Paul, “Study of Power Factor Correction Technique for a grid connected Hybrid System”, 17-18 January. 2020, *International Conference on Computer, Electrical & Communication Engineering (ICCECE)*, Date Added to IEEE Xplore: 14 October 2020. DOI: 10.1109/ICCECE48148.2020.9223021
2. Kunal Chowdhury and **Ratan Mandal**, “Agrivoltaic: A new approach of sustainable development”, *EDITED VOLUME* of the Book titled “Advances in Water Resources Management for Sustainable Use” *Lecture Notes in Civil Engineering* book series (LNCE, volume 131), 25 April 2021, Springer. DOI: 10.1007/978-981-33-6412-7\_37
3. Apurba Sharma, Nabanita Banerjee and **Tushar Jash**, An evaluation of engine performance of a compression ignition engine with biodiesel produced from different kinds of feedstock, 2020, *EDITED*

## Annual Report 2020-2021

VOLUME of the Book titled “Water Resources Management for Sustainable Use”, Lecture Notes in Civil Engineering, ISBN 978-981-336-411-0

4. Atanu Dutta, Deepanjan Majumdar and **Tushar Jash** , Variation in fuel consumption with load in private cars – Scenario in real-time traffic conditions, 2020, EDITED VOLUME of the Book titled “Advances in Water Resources Management for Sustainable Use”, Lecture Notes in Civil Engineering, ISBN 978-981-336-411-0
5. Madhumita Das, **Ratan Mandal**, “Role of solar water pumping to enhance the energy and food security in Indian subcontinental countries-India, Pakistan and Bangladesh: A Review” International Conference On Sustainable Water Resources Management under Changed Climate, ICSWRMCC-2020, Jadavpur University, 13 to 15 March, 2020, accepted for publication in Edited Volume entitled "Water Resources: Current and Future Challenges and Research Directions".
6. RAKESH NASKAR, ASIT K.GHOSH and **RATAN MANDAL**, “Some Studies on energy conservation and Thermal Comfort using Natural Refrigerants in Solar Thermal & Solar Photovoltaic powered Air-conditioning and Refrigeration System”, International Conference On Sustainable Water Resources Management under Changed Climate, ICSWRMCC-2020, Jadavpur University, 13 to 15 March, 2020, accepted for publication in Edited Volume entitled "**Water Resources: Current and Future Challenges and Research Directions**".
7. Adrita Santra, Antalina Saha, Soumya Ghorai, **Ratan Mandal**, Kamalika Ghosh, “Development of UV aided water purification system powered by Solar Energy for Remote Villages”, International Conference On Sustainable Water Resources Management under Changed Climate, ICSWRMCC-2020, Jadavpur University, 13 to 15 March, 2020, accepted for publication in Edited Volume entitled "**Water Resources: Current and Future Challenges and Research Directions**".
8. Tarak Nath Chell, **Ratan Mandal**, Tushar Jash, “A review of the change in performance of photovoltaic panels due to dust accumulation- Challenges and their solution”, International Conference On Sustainable Water Resources Management under Changed Climate, ICSWRMCC-2020, Jadavpur University, 13 to 15 March, 2020, accepted for publication in Edited Volume entitled "Water Resources: Current and Future Challenges and Research Directions".

### F. **Research Articles Published in Conference Proceedings during the year:**

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Soumya Ghorai, Deepanjan Majumdar, **Tushar Jash** and Susanta Ray, *PV assisted Fuzzy based EV charge scheduling for demand side energy management: a case study*, 2020, Proceedings of 2020 IEEE Calcutta Conference (CALCON)

### 5. **Professional Activities by the Faculty Members / Research Scholars of the School during the year:**

#### F. **Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	National Webinar	IMPS College of Engineering and Technology, Malda, West Bengal.	16 July, 2020.
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	INTERNATIONAL LEVEL Online Webinar on “Resource Studies: A Changing Paradigm in Social science”	Integrated Institute for Advanced Research and Information, Kolkata.	16 August, 2020.

### Annual Report 2020-2021

<b>Prof. Ratan Mandal</b>	Invited lecture delivered	AICTE Sponsored Short Term Training Programme on Recent Trends in Internet of Things (IoT) and Embedded System Based Monitoring and Control of Distributed Generation	Narula Institute of Technology, Agarpara, West Bengal.	24 – 29 August, 2020.
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	National Webinar on ENTREPRENEURSHIP DEVELOPMENT PROGRAM ON RENEWABLE ENERGY	Department of Renewable Energy, Maulana Abul Kalam Azad University of Technology, West Bengal.	20 September 2020.
<b>Prof. Ratan Mandal</b>	Invited panelist	Two-week National Webinar on “Recent Advancements on Mechanical Engineering”	Department of Mechanical Engineering, Cooch Behar Government Engineering College, West Bengal.	1-13 November, 2020.
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	webinar on an overview of “Non Conventional Energy”	Department of Electrical Engineering., Gargi Memorial Institute of Technology, Baruipur, Kolkata.	29 November, 2020.
<b>Prof. Ratan Mandal</b>	Session chaired	1st International Conference on Contemporary Issues in Computing (ICCIC 2020)	Kolkata.	25 – 26 July, 2020.
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	Virtual International Conference Innovative Research in Renewable Energy Technologies (IRRET-2021)	IMPS College of Engineering and Technology, Malda, West Bengal.	25 -27 February, 2021
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	Webinar organised by SAP Committee	Brahmananda Keshab Chandra College, Kolkata-108	19 February, 2021
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	Panel Discussion on the Topic- “Energy – Alternative Resources”	KOLKATA COST AND MANAGEMENT SOCIETY (KCMS)	6 February, 2021.
<b>Prof. Ratan Mandal</b>	Invited lecture delivered	Faculty Development Programme on ‘Patenting Technology and Process innovations Related to Renewable Energy’	Department of Power Engineering, Jadavpur University.	17 – 22 February, 2021



## Annual Report 2020-2021

### ENVIRONMENTAL STUDIES

Phone: 033-2457-2874/ 2543

Director: Prof. Pankaj Kumar Roy

Dr. Joydeep Mukherjee (Since 4.2.2021)

E-mail: [dir.environmental@jadavpuruniversity.in](mailto:dir.environmental@jadavpuruniversity.in)

#### 1. Vision and Mission of the School:

##### A. Vision:

Impart holistic higher education in environmental science and technology so that the students may contribute towards the preservation of the environment.

##### B. Mission:

Offer Diploma course directly related to the needs of the industry; train students at the post graduate level for careers in teaching and research; train PhD students in projects related to current real life environmental problems.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M. Tech. in Environmental Biotechnology	2	1 <sup>st</sup> year	13
		2 <sup>nd</sup> year	9
Advanced Diploma in Industrial Safety and Environmental Management	1.5	1 <sup>st</sup> year	Nil
		2 <sup>nd</sup> year	30
PhD	4-5		15

#### 3. Faculty Members in the School:

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
Nil	2	2	4

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

Environmental Biotechnology and Microbiology, Environmental Chemistry, Biogeochemistry, Air pollution, Aerobiology

##### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
1	15

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

Evaluation of acute and chronic arsenic exposure on school children from exposed and apparently control areas of West Bengal, India. M. Joardar, A. Das, D. Mridha, A. De, N. R. Chowdhury, T.

## Annual Report 2020-2021

- Roychowdhury. Exposure and Health 2021, 13, 33-50. <https://doi.org/10.1007/s12403-020-00360-x> (Springer, IF: 11.422)
- Fluoride exposure and its potential health risk assessment in drinking water and staple food in the population from fluoride endemic regions of Bihar, India. D. Mridha, P. Priyadarshni, K. Bhaskar, A. Gaurav, A. De, A. Das, M. Joardar, N. R. Chowdhury, T. Roychowdhury. Groundwater for Sustainable Development 2021, 100558. <https://doi.org/10.1016/j.gsd.2021.100558> (Elsevier)
- Health effect and risk assessment of the populations exposed with different groundwater arsenic levels and dietary foodstuffs from four arsenic-exposed villages in Gaighata block, West Bengal. M. Joardar, A. Das, N. R. Chowdhury, D. Mridha, A. De, K. K. Majumdar, T. Roychowdhury. Environmental Geochemistry and Health 2021, 43, 3027-3053. <https://doi.org/10.1007/s10653-021-00823-3> (Springer, IF: 4.609)
- Arsenic toxicity in livestock growing in arsenic endemic and control sites of West Bengal: Risk for human and environment. A. Das, M. Joardar, N. R. Chowdhury, A. De, D. Mridha, T. Roychowdhury. Environmental Geochemistry and Health 2021, 43, 3005-3025. <https://doi.org/10.1007/s10653-021-00808-2> (Springer, IF: 4.609)
- Hydro-priming of rice seed (IR64) with potassium humate for germination enhancement, seedling growth promotion and better antioxidant defense system under arsenic stress. D. Mridha, I. Paul, A. De, I. Ray, A. Das, M. Joardar, N. R. Chowdhury, P. B. S. Bhadoria, T. Roychowdhury. Ecotoxicology and Environmental Safety 2021, 219, 112313. <https://doi.org/10.1016/j.ecoenv.2021.112313> (Elsevier, IF: 6.291)
- Impact of microbial multi-metal and broad spectrum antibiotic tolerance in urban SW (Adi Ganga, Kolkata) on adjacent groundwater: A future threat. S. Ghosh, S. Majumder, T. Roychowdhury. Groundwater for Sustainable Development 2021, 14, 100608. <https://doi.org/10.1016/j.gsd.2021.100608> (Elsevier)
- Fluoride exposure and probabilistic health risk assessment through different agricultural food crops from fluoride endemic Bankura and Purulia districts of West Bengal, India. A. De, D. Mridha, I. Ray, M. Joardar, A. Das, N. R. Chowdhury, T. Roychowdhury. Frontiers in Environmental Science 2021, 9, 713148. doi: 10.3389/fenvs.2021.713148 (Frontiers, IF: 4.581)
- Mitigating arsenic stress: Potassium priming in rice. D. Mridha, I. Paul, A. De, I. Ray, A. Das, M. Joardar, N. R. Chowdhury, P. B. S. Bhadoria, T. Roychowdhury. Current Science 2021, 120(11), 1659.
- Exposure and health risk assessment of different aged children due to arsenic toxicity from a severely exposed block of West Bengal, India. M. Joardar, A. Das, A. De, D. Mridha, N. Roy Chowdhury, I. Ray, T. Roychowdhury. Indian Groundwater 2021, 27, 147-157.
- Chaudhuri A, Bhattacharyya S, Chaudhuri P, Sudarshan M, Mukherjee S. In vitro deterioration study of concrete and marble by *Aspergillus tamarii*. Journal of Building Engineering. 2020 Nov 1;32:101774.
- Basu S, Bhattacharyya S, Gogoi P, Dasgupta S, Das SK. Variations of surface water quality in selected tidal creeks of Sagar Island, Indian Sundarban eco-region: a multivariate approach. Applied Water Science. 2021 Mar;11(3):1-1.
- Basu S, Chanda A, Gogoi P, Bhattacharyya S. A Multi-decadal Comparative Analysis of a Set of Physicochemical and Nutrient Parameters in the Tropical Tidal Creeks of Indian Sundarban Mangrove Biosphere Reserve. Thalassas: An International Journal of Marine Sciences. 2021 Mar;37(1):303-12.
- Chaudhuri A, Bhattacharyya S, Chaudhuri P. In vitro susceptibility testing of indoor fungi by Etest. Asian Jr. of Microbiol. Biotech. Env. Sc. Vol. 22 (4) : 2020Aug : 642-647
- Bacillus rugosus* sp. nov. producer of a diketopiperazine antimicrobial, isolated from marine sponge *Spongia officinalis* L.: Dhruva Bhattacharya, Sergio de los Santos Villalobos, Valeria Valenzuela Ruiz, Joseph Selvin, Joydeep Mukherjee: Antonie van Leeuwenhoek, 113, 1675–1687, 2020
- Assessment of polycyclic aromatic hydrocarbon contamination in the Sundarbans, the world's largest tidal mangrove forest and indigenous microbial mixed biofilm-based removal of the contaminants: Saranya Balu, Shantanu Bhunia, Ratan Gachhui, Joydeep Mukherjee: Environmental Pollution, 266, 115270, 2020

## Annual Report 2020-2021

Whole-Genome sequence of cyanobacterium *Oxynema* sp. AP17, isolated from an Indian mangrove forest: Shayontani Basu, Veerabadhran Maruthanayagam, Arnab Pramanik, Joydeep Mukherjee: Microbiology Resource Announcements 9:e00808-20. <https://doi.org/10.1128/MRA.00808-20>, 2020  
Draft genome sequence of *Bacillus* sp. Strain SPB7, isolated from the marine sponge *Spongia officinalis*: Dhruva Bhattacharya, Sergio de los Santos Villalobos, Valeria Valenzuela Ruiz, Joseph Selvin, Joydeep Mukherjee: Microbiology Resource Announcements, 9:e00358-20. <https://doi.org/10.1128/MRA.00358-20>, 2020

Application of recycled slaughterhouse wastes as an organic fertilizer for successive cultivations of bell pepper and amaranth: Shantanu Bhunia, Ankita Bhowmik, Rambilash Mallick, Anupam Debsarcar, Joydeep Mukherjee: Scientia Horticulturae, 280, 109927, 2021

The current and future role of microbial culture collections in food security worldwide: Alondra María Díaz-Rodríguez, Lilian Alejandra Salcedo Gastelum, Carmen María Félix Pablos, Fannie Isela Parra-Cota, Gustavo Santoyo, Mariana Laura Puente, Dhruva Bhattacharya, Joydeep Mukherjee, Sergio de los Santos-Villalobos: Frontiers in Sustainable Food Systems 4:614739. doi: 10.3389/fsufs.2020.614739, 2021

Kayee, J., Bureekul, S., Sompongchaiyakul, P., Wang, X. and Das, R. (2021). Sources of Atmospheric Lead (Pb) after Quarter Century of Phasing Out of Leaded Gasoline in Bangkok, Thailand. Atmospheric Environment. 253, 118355.

Mandal, A., Dutta, A., Das, R. Mukherjee, J., (2021). Role of intertidal microbial communities in carbon dioxide sequestration and pollutant removal: A review. Marine Pollution Bulletin 170, 112626.

T Bhowmick, G Sen, J Mukherjee, R Das, (2021). Assessing the Effect of Herbicide Diuron on River Biofilm: A Statistical Model. Chemosphere. 131104.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

Status of groundwater arsenic contamination in the GMB plain. A. Das, A. Das, M. Mukherjee, B. Das, S. C. Mukherjee, S. Pati, R. N. Dutta, Q. Quammaruzzaman, K. C. Saha, M. M. Rahman, D. Chakraborti, T. Roychowdhury. Book: Managing Water Resources and Hydrological Systems. CRC Press, 2020, 369-381.

S Basu, A Chanda, S Das, S Bhattacharyya. Persistent Organic Pollutants in the Coastal and Estuarine Regions Adjoining the Indian Periphery of the Bay of Bengal. In Estuarine Biogeochemical Dynamics of the East Coast of India 2021 Nov (pp. 103-110). Springer, Cham. ISBN: 978-3-030-68979-7

P Chaudhuri, S Bhattacharyya. Impact of Covid-19 lockdown on the socio-environmental scenario of Indian Sundarban. In Environmental Resilience and Transformation in Times of COVID-19 2021 Jan 1 (pp. 25-36). Elsevier, ISBN 978-0-323-85512-9

Microbial diversity of the Sundarbans, the world's largest tidal mangrove forest, and its bioprospects: Kaushik Biswas, Joydeep Mukherjee: Book chapter in Microbial Diversity in Ecosystem Sustainability and Biotechnological Applications, Volume 2, Soil and Agroecosystems Eds. Tulasi Satyanarayana, Subrata Kumar Das, Bhavdih Narain Johri, Springer, 2020

Microbial Infections and Virulence Factors: Sayak Bhattacharya, Joydeep Mukherjee book chapter in Model Organisms for Microbial Pathogenesis, Biofilm Formation and Antimicrobial Drug Discovery, Editors BusiSiddhardha, Madhu Dyavaiah, Asad Syed, Springer, 2020

Das, R. (2021). Sources of Atmospheric Lead (Pb) over Indian Cities and Health Impact in Singh, R.P. (ed) Asian Atmospheric Pollution. Elsevier, chapter 23 (pp. 435-452) ISBN: 978-0-128-16693-2.

Das, R. and Mukherjee, M. (2021) Earth Science in Environmental Management in Sikdar, P.K. (ed.) Environmental Management: Issues and Concerns in Developing Countries. Capital Publishing Company Co-published by Springer, pp. 23-41. ISBN: 978-3-030-62528-3.

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN / ISBN No, Year)

## Annual Report 2020-2021

Different routes of arsenic accumulation in rice grain: Root to Gut. N. Roy Chowdhury, A. Das, M. Joardar, D. Mridha, A. De, T. Roychowdhury. Technical Session (T 173): Arsenic, fluoride, manganese and radiogenic contaminants in groundwater systems – Scientific knowledge, public health concerns and removal technology. The Geological Society of America (GSA), 2020 Annual Meeting, 26–30 October. Presenter (online): N. Roy Chowdhury, 28 October, 2020

### G. Patents Granted/ Published/ Filed during the year:

Name of the Inventors	Title of the Patent	National/ International	Status Granted/ Published/Filed	Patent Number	Date of filing
Ankita Bhowmik, Shantanu Bhunia, Joydeep Mukherjee	An apparatus for recycling slaughterhouse waste and method thereof	National	Filed		01 August, 2020
Atulona Datta and Joydeep Mukherjee	Device and method of providing enhanced surface area for growth and attachment of biofilms/ biological cells in a modified cylindrical flask	National	Filed		27 February, 2021

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Joydeep Mukherjee	Sergio de los Santos-Villalobos	Departamento de Ciencias Agronómicas y Veterinarias, Instituto Tecnológico de Sonora, Ciudad Obregón, Sonora, Mexico	Joint publications	2020
Reshmi Das	Xianfeng Wang	Earth Observatory of Singapore, Nanyang Technological University, Singapore.	Joint Publication, Laboratory facility sharing	2020-2021
	Penjai Sompongchaiyakul	Marine Science Department, Chulalongkorn University, Bangkok, Thailand	Joint Publication, student exchange	2020-2021

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### C. Seminar/Workshop/Conference/Symposium Organized:

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/	Title of the Proceedings, if published	Place	Date
--	-----------------------------	--	-------	------

**Annual Report 2020-2021**

	<b>Organizing Secretary/equivalent</b>			
Coordination of Web-based Exposition on Engineering and Technology, Jadavpur University (WEBINAR-FET-JU R&D Expo 2021) on the Thematic Area “Environmental Protection”, under the Research and Development Plan of the World Bank assisted Technical Education Quality Improvement Programme (TEQIP-III), Govt. of India	Dr. Tarit Roychowdhury			26 February, 2021
Coordination of Online Webinar on “Environmental Sustainability: Current Research and Development”, under the Research and Development Plan of the World Bank assisted Technical Education Quality Improvement Programme (TEQIP-III), Govt. of India. School of Environmental Studies, Jadavpur University	Dr. Tarit Roychowdhury			19 March, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Tarit Roychowdhury</b>	Invited talk	Awareness lecture on issue related to ‘World Environmental Day, 2020’, National level webinar, Department of Botany, Narajole Raj College,	Narajole, Paschim Medinipur,	5 June, 2020.
<b>Dr. Tarit Roychowdhury</b>	Invited talk	National webinar on ‘Technology and Sustainable Development: The way forward under Covid times’.	A. N. College, Patna and Indian Council of Historical Research, New Delhi	29-30 July, 2020,
<b>Dr. Tarit Roychowdhury</b>	Invited talk	National webinar on ‘Swachhata in Environment: Abatement in spreading of Covid-19’,	Tripura State Pollution Control Board	3 August, 2020
<b>Dr. Tarit Roychowdhury</b>	Invited talk	International conference on ‘Science and Technology’. 8 th	Patna University, Patna and Brain	3-5 December, 2020

## Annual Report 2020-2021

		Bihar Science conference 2019,	Development Society, Patna	
<b>Dr. Tarit Roychowdhury</b>	Invited talk	Refresher Course in 'Environmental Studies', UGC Human Resource Development Centre,	University of Calcutta	13-27 March, 2021

**6. Major Achievements of the School during the year:**

**C. Awards received by Research Scholars/students**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Shantanu Bhunia and Ankita Bhowmik	Best poster award in 3 <sup>rd</sup> International Conference on Waste Management, RECYCLE 2020	Indian Institute of Technology Guwahati	Guwahati

**7. Extension Activities of the School during the year:**

**D. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

**Dr. Tarit Roychowdhury** A MOU has been assigned between IIT, Roorkee and Jadavpur University regarding 'IMPRINT II A' project, funded by Science and Engineering Research Board (SERB), Department of Science & Technology, Govt. of India: Arsenic and other contaminants free drinking water production of ~20,000 L/day in the arsenic affected area of India using laterite and ferromanganese slag based technology (IMPRINT-IIA, File number: IMP/2018/001228)

**Dr. Joydeep Mukherjee** MoU signed between Mend Earth, a startup company incubated at IIT Kanpur regarding the transfer of technology developed through his research work for the production of bioplastics

**E. Activities for the Society:**

**Dr. Joydeep Mukherjee** Machinery for the conversion of slaughterhouse wastes to an organic fertilizer set up in Magrahat (South 24 Parganas). Local farmers are using the fertilizer in their agricultural practice.

**8. Students Progression during the year:**

**A. Progression to Higher Studies**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
4	M. Tech. (Environmental Biotechnology)	Ph.D.	IISER (Kolkata) IIT (Guwahati) IISc (Bangalore) BIT (Mesra)

**B. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
NET	2
GATE	3

## Annual Report 2020-2021

### Illumination Science, Engineering & Design

Phone No. : +91-33-2414-6616

Int. : 2457-2541

Director : Dr. Kamalika Ghosh & Mr. Parthasarathi Satvaya (since 30.3.2021)

E-mail : dir.illumination@jadavpuruniversity

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M.Tech. in Illumination Technology & Design	3	1 <sup>st</sup> year	18
		2 <sup>nd</sup> year ...	17
		3 <sup>rd</sup> Year	26

#### 3. Faculty Members in the School:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
		2	1

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

- Conservation of old artifacts cum Biological effects of light.
- Performance analysis and upgradation of Light Emitting Diodes.
- Daylight utilization through PV and urban planning

##### C. Doctoral Research Activities :

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
2	1

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No.,Page No./Article No., Year of publication)

- Name of authors : **Dr. Kamalika Ghosh and Dr. Debashis Raul**  
Title : **Analysis on Thermal Behavior of the Sink and Die area with different Thermal Interface Material for High Power Light Emitting Diodes.**  
Name of the Journal: *Light & Engineering, Znack Publishing House, Russian Federation* : Volume - 5, September, 2020
- Name of authors : **Dr. Kamalika Ghosh , Vishwanath Gupta, Prof. Biswarup Basak and Prof. Biswanath Roy**  
Title : **Universal control algorithm for automatic current regulated LED driver**  
Name of the Journal: **International Journal of Power Electronics, Inderscience Publishers , Switzerland, ISSN-1756638X, 17566398**  
Volume No., Page No./Article No.,Year of publication : **Vol. 12, No. 2, 2020**

## Annual Report 2020-2021

**E. Research Articles Published in Edited Volumes during the year:**

Dr. Kamalika Ghosh and Dr. Anubrata Mondal: A proposal for disinfection through light, in *Advances in Data Science and Computing Technology, Methodology and Applications* : CRC Press, Taylor and Francis Group, ISBN/ISSN No., Year : Approval received, yet to publish in February 2022, Apple Academic Press Inc., USA , ISBN: 9781774639979

**F. Research Articles Published in Conference Proceedings during the year:**

Rinku Supakar, Parthasarathi Satvaya: A Review on Energy Efficient optimization and Green Networking, International Conference on Forth Industrial Revolution based Technology and Practices, ICFIRTP-2020, Dehradun, 26 – 27 March, 2021

**5. Professional Activities by the Faculty Members/Research Scholars of the School during the year:**

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
Dr.Kamalika Ghosh	Faculty Development programme under TEQUIP -III	Jadavpur University	17 -22 February, 2021
Dr. Kamalika Ghosh	AICTE Training and Learning (ATAL) Academy course on "Green Technology & Sustainability Engineering "	Arranged by AICTE through on-line mode	11-15 November, 2020.
Dr. Kamalika Ghosh	One week e-learning programme on Power Electronics	NIT-Silchar	7-11 September.2020
Dr. Kamalika Ghosh	Workshop on "Robust Design Method"	Bharatiya Vidya Bhavan, Mumbai, TEQUIP funded.	28-29 January and 1 February,2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Dr.Kamalika Ghosh	2 nos. Lectures Delivered	Faculty Development Programme under TEQUIP -III	Jadavpur University	2 nos. lecture, in 17 -22 February, 2021



## Annual Report 2020-2021

### INTERNATIONAL RELATIONS AND STRATEGIC STUDIES

Phone ; 033-2457-2229

Director : Prof. Shibashis Chatterjee

Prof. Amites Mukhopadhyay

**1. Vision and Mission of the School:**

**A. Vision:** The school encourages interdisciplinary approaches to advanced study And research in the field of international relations and strategic issues in the international arena. The school provides a forum for intellectual exchanges among three faculties of Jadavpur University.

**B. Mission:** The school aims to open up broad based interdisciplinary studies initiating a dialogue among academic who otherwise would remain steeped in their discipline based departmental research.

**3. Faculty Members in the School:**

No regular Faculties only as Academic Committee members from different departments of JU

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
2			3

**4. Research Activities:**

**A. Areas of Research Activities :(Broad Areas)**

International relations, strategic relations, Global Public Policy, Foreign Policy Analysis, Governance of Science and Policy Studies  
Global Environmental Policies and Human Rights  
Security issues in global and South Asian context

**C. Doctoral Research Activities:**

Number of students awarded Ph.D. during the year	Number of Ph.D students registered in the School
2	3

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year**

**A. Books/Monographs Published : Working Paper as adjunct fellow of SIRSS**

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Dr Sumit Roy	Transformiing Africa: Ethopia and the Rising powers	School of International Relations and Strategic Studies, JU	NA	December, 2020

## Annual Report 2020-2021

**C. Seminar/Workshop/Conference/Symposium Organized:**  
(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Research Methods in international relations and social sciences	Prof Shibashish Chatterjee	No	Department of International Relations	10-24 July, 2020

### LANGUAGES & LINGUISTICS

Phone: 033-2457-2144/2943/2420

Director: Dr. Samir Karmakar

E-mail: [dir.language@jadavpuruniversity.in](mailto:dir.language@jadavpuruniversity.in)

**1. Vision and Mission of the School:**

**A. Vision:**

The primary vision of the school is to facilitate interdisciplinary teaching and research in languages and linguistics within our faculty. We aim to foster a collaborative environment within which learning and research on all aspects of languages is nurtured. The scholarly vision of our school remains trained on linguistics as a discipline well-poised and positioned to offer a vantage point to cognitive sciences on the one hand and computer sciences on the other. Theoretical insights from our research enrich both cognitive and computational models of language processing and in our school through our various projects and collaborations, we hope to continue to work towards making strides in building these connections. In addition, we have allocated and will continue to allocate intellectual resources towards documentation of lesser-known and under-studied languages.

**B. Mission:**

Our mission for the growth of our school is to integrate our linguistics and language teaching arms seamlessly so as to provide our stakeholders with the knowledge and know-how that is both intellectually and scientifically rigorous. Towards that mission, we are focussed on student engagement, building national and international collaborations, and committing ourselves to research projects that have both research impact and social relevance.

**2. Academic Activities:**

**A. Programmes offered:**

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
MA	2	1 <sup>st</sup> year	23
		2 <sup>nd</sup> year	27
M.Phil	2	1 <sup>st</sup> year	10
		2 <sup>nd</sup> year	8
Ph.D	4	1 <sup>st</sup> year	Nil

## Annual Report 2020-2021

		2 <sup>nd</sup> year	2
		3 <sup>rd</sup> year	2
		4 <sup>th</sup> year	6
Choice based undergraduate courses under the faculty of arts			
Certificate Course in Linguistics (evening)	1	1 <sup>st</sup> year	17
Certificate course in Bengali	1	1 <sup>st</sup> year	3
Certificate course in French	1	1 <sup>st</sup> year	40
Certificate course in German	1	1 <sup>st</sup> year	23
Certificate course in Italian	1	1 <sup>st</sup> year	5
Certificate course in Portuguese	1	1 <sup>st</sup> year	4
Certificate course in Korean	1	1 <sup>st</sup> year	15
Certificate course in Sanskrit	1	1 <sup>st</sup> year	7
Certificate course in Spanish	1	1 <sup>st</sup> year	32
Certificate course in Hindi	1	1 <sup>st</sup> year	11
Certificate course in Japanese	1	1 <sup>st</sup> year	10
Certificate course in Chinese	1	1 <sup>st</sup> year	9
Certificate course in Functional and Communicative English	6 months	1 <sup>st</sup> year	49
Diploma course in Bengali	1	1 <sup>st</sup> year	1
Diploma course in French	1	1 <sup>st</sup> year	19
Diploma course in German	1	1 <sup>st</sup> year	17
Diploma course in Italian	1	1 <sup>st</sup> year	0
Diploma course in Portuguese	1	1 <sup>st</sup> year	0
Diploma course in Sanskrit	1	1 <sup>st</sup> year	6
Diploma course in Spanish	1	1 <sup>st</sup> year	8
Diploma course in Hindi	1	1 <sup>st</sup> year	3
Diploma course in Korean	1	1 <sup>st</sup> year	11
Advanced Diploma course in Bengali	1	1 <sup>st</sup> year	0
Advanced Diploma course in French	1	1 <sup>st</sup> year	0
Advanced Diploma course in Portuguese	1	1 <sup>st</sup> year	0

### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1	NIL	2	3

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

1. Neuro-Cognitive and Acoustic Analysis of the Natural Language
2. Formal Syntax, Semantics, and Pragmatics
3. Mathematical Modeling of Language
4. Hierarchical Clustering of Language Data and Computational Historical Linguistics
5. Linguistic Right and Language Policies from the Viewpoint of Multilingualism
6. Traditional Indian Grammars and the Indian Philosophy of Grammar
7. Language Documentation and Preservation of the Endangered Languages
8. Foreign language learning

## Annual Report 2020-2021

9. Multilingualism
10. Natural Language Processing, Machine learning
11. Speech processing and articulatory modeling and dynamics

### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Syntactic and Semantic Integration of Concepts in Event Construal: A Neuropsychological Study of Serial Verb and Complex Predicate Constructions	Individual	Dr. Samir Karmakar	DST-CSI	36 months
Study and research in the endangered and lesser-known Languages of West Bengal	Departmental	Dr. Atanu Saha	UGC	60 months
Linguistic doppelgängers and the phonological nature of bilingual lexical processing	Individual	Dr. Indranil Dutta (co-Applicant)	SSHRC	24 months
Multilingualism in Kolkata	Individual	Dr. Atanu Saha	South Asia Global Partnership, University of Exeter	6 months

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
2	NIL

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

**Mandal, Atanu, Santanu Pal, Indranil Dutta, Mahidas Bhattacharya, and Sudip Kumar Naskar.** 2021. Is Attention always needed? A Case Study on Language Identification from Speech. *arXiv:2110.03427*

**Shankha Sanyal, Archi Banerjee, Medha Basu, Sayan Nag, Dipak Ghosh, and Samir Karmakar.** Emotions from Musical Notes? A Psycho-Acoustic Exploration with Indian Classical Music. *The Journal of the Acoustical Society of America* 148, no. 4, 2700, 2020

**Spandan Chowdhury.** Finding Geometry in Quantifiers: A Cognitive Perspective. *Jadavpur Journal of Languages and Linguistics*, 4 (Special Issue), 82 – 97, 2020

**Spandan Chowdhury.** A Method for Solving Word Problems in Mathematics using the concept of Deixis. *Jadavpur Journal of Languages and Linguistics*, 4 (2), 8 – 17, 2020.

**Spandan Chowdhury.** Tense, Aspect and Situation Types in Mech. *Interdisciplinary Journal of Linguistics, University of Kashmir*, 13 (1), 174-187, 2021.

## Annual Report 2020-2021

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

**দেবদীপ ধীবর।** “বিপন্নভাষীদের ভাষা-দর্শন: জ্ঞানতত্ত্বের শেষ কথক!” সাহিত্যের নানা আঙ্গিক, সম্পাদনায় – সম্প্রিয়া চ্যাটার্জী, দীপঙ্কর ঘোষ, দেবদীপ ধীবর ও বলরাম ব্যাপারী, ২০০-২০৮। কলকাতা: কগনিশন পাবলিকেশনস্, জানুয়ারি ২০২১।

**দেবদীপ ধীবর।** “বঙ্গীয় জনজীবনে বিপন্ন ভাষা: প্রভাব ও প্রতিযোগিতা।” সহজিয়া প্রথম বর্ষ, তৃতীয় সংখ্যা (জানুয়ারি ২০২১): ১৬০ - ১৭২।

**Sankar Ram Barman.** *bānlā jukto kriēār śārīrik aṅga-pratyāṅgamulak śabda*, Academia : A Multidisciplinary Book (Vol 1), (ISBN: 978-93-86529-46-6), Edited by D. Dhosh, S. Thakur, M. Mondal, M. Ansary, Cognition Publications, January 2021, pg. 49-62.

**Bijit Ghosh & Spandan Chowdhury.** “Can Online Product Sales be Increased by Ordering a Positive Review before a Negative One?” In “Doctoral Symposium Conference Proceedings 2020” of *IIM Kozhikode Doctoral Symposium 2020*. Edited by Prof. Mohammed Shahid Abdulla & Prof. Ram Kumar P. N., Page No. 90 – 95. Published by: Indian Institute of Management Kozhikode (IIM Kozhikode), India. December 9 – 11, 2020. ISBN: 978-93-5437-613-9, Year: 2020.

### F. Research Articles Published in Conference Proceedings during the year

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year)

**Arka Banerjee & Samir Karmakar.** How light verbs shed light on attitude building, *In Proceedings of 22nd Seoul International Conference on Generative Grammar (SICOGG 22)*, Tae Sik Kim & Sae-Youn Cho (eds.), 21-37, 2020.

**Shankha Sanyal, Archi Banerjee, Medha Basu, Sayan Nag, Dipak Ghosh, and Samir Karmakar.** Do musical notes correlate with emotions? A neuro-acoustical study with Indian classical music. *Proceedings of Meeting on Acoustics* Vol. 42, 035005, 2021.

**Spandan Chowdhury, Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar and Dipak Ghosh.** An acoustic exploration of event construals in Bengali language. *Journal of Physics: Conference Series*, vol. 1896, no. 1, p. 012012. IOP Publishing, 2021

**Spandan Chowdhury, Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar and Dipak Ghosh.** Acoustic Classification of Complex Predicates and Serial Verbs in Bengali. *Proc. of International Conference on Communication, Computation & Cognition (IC3C-2021)*, VIT, Bhopal; 29-31 January 2021

**Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar and Dipak Ghosh.** Neural Processing of the Prosodic Features Related to Communicative Intent in Spoken Bengali Language. *Proc. of International Online Conference of Psycholinguistic and Neurolinguistic Research: Methods, Materials, and Approaches 17-19 December 2020*

**Spandan Chowdhury, Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar and Dipak Ghosh.** Perceptual Categorization of Events in Bengali Multi-verb Constructions. *Proc. of International Online Conference of Psycholinguistic and Neurolinguistic Research: Methods, Materials, and Approaches 17-19 December 2020*

Debopam Das, Mark Stede, Soumya Ghosh, Lahari Chatterjee. DiMLeX-Bangla : A Lexicon of Bangla Discourse Connectives. Paper published In Proceedings of the 12th International Conference on Language Resources and Evaluation (LREC 2020), pages 1097-1102, Palais du Pharo, France. ISSN : 2522-2686

## Annual Report 2020-2021

Abahan Datta. Haora Bridge Himalaya Darshan. Pg 199. Parichay, Issue 1, Year 90. July-October 2020. ISSN No. 2321-936X

**Spandan Chowdhury.** “*Tense, Aspect and Situation Types in Mech*”. In Proceedings and Book of Abstracts of International Webinar "Perspectives on Indigenous Minority Linguistic Groups: Issues, Challenges and Prospects", Department of Linguistics, University of Kashmir, India. 26-27 August, 2020

**Sayani Banerjee, Samir Karmakar,** Ordering of Events in Mental Space of the Reader, IC3C-Communication, Cognition, Computation- Book of Abstracts, 16, SASL & SCSE, VIT Bhopal University and SLL Jadavpur University, 2021.

**Spandan Chowdhury.** “*Syntactic Preference Patterns of Phrases denoting Emotion: A Case Study in Bengali and Hindi*”. In Book of Abstracts of The 56th Linguistics Colloquium (LingColl), Magdeburg-Stendal University of Applied Sciences and University of Mainz, Germany. 26 – 28 November, 2020.

**Rusa Bhowmik.** Language Contact in the numerals of the Malda variety of Khortha. (S. Dutta, & S. Dutta, Eds.), DURDAIBA, 4 (1), 61-65, 2020.

**Spandan Chowdhury.** “*Emotion Categorization based on Phrase Order Preferences in Bengali*”. In Book of Abstracts of International Conference of Psycholinguistics and Neurolinguistics Research: Methods, Materials, and Approaches (PsyNeuroLing2020), University of Salamanca, Spain & NLU Delhi, India. 17 – 19 December, 2020.

**Rusa Bhowmik.** The cognitive aspect of word meaning in the Brahmakāṇḍa of Vākyapadīyaṃ. (D. Ghosh, S. Sanyal, P. K. Gayen, & R. Ghosh, Eds.) Jadavpur Journal of Languages and Linguistics, 4 (Special Issue (ICRSM 2020)), 33-39, 2020.

**Spandan Chowdhury, Shankha Sanyal, Samir Karmakar, & Dipak Ghosh.** “*Acoustic Classification of Complex Predicates and Serial Verbs*”. In Book of Abstracts of International Conference on Communication, Computation & Cognition, (IC3C-2021), VIT Bhopal University & Jadavpur University, India. 29 – 31 January, 2021.

**Spandan Chowdhury.** “*Natural Language Interface for CNC Machines: Issues, Challenges & the Way Forward*”. In Book of Abstracts of International Conference on Communication, Computation & Cognition, (IC3C-2021), VIT Bhopal University & Jadavpur University, India. 29 – 31 January, 2021.

**Ratul Ghosh, Spandan Chowdhury, Shankha Sanyal, & Samir Karmakar.** “*An Acoustic Study of Emotions expressed in Bengali Speech*”. In Book of Abstracts of International Conference on Communication, Computation & Cognition, (IC3C-2021), VIT Bhopal University & Jadavpur University, India. 29 – 31 January, 2021.

**Shuvam Dutta.** Language Vitality, Attitude and Endangerment: Understanding from Field Work among Lodha Speakers, The GLOCAL Conference 2020 in Asia - Conference Proceedings Papers, 59, GLOCAL, ISSN: 2707-8647, 2020.

**Shuvam Dutta.** Case Marking of Rava in Comparison with Bangla. The GLOCAL Conference 2020 in Asia - Conference Proceedings Papers, 246, GLOCAL, ISSN: 2707-8647, 2020.

**Patitpaban Pal,** ভাষার পিতা-মাতা-পুত্র-কন্যা সম্পর্কের খোঁজে শব্দশরীর: প্রত্নরূপ ও রূপভেদ (Bhashar Pita-mata-putra-kanya Samparker Khoje Shabdasharir: PratnarUp O Rupbhed), উদ্বোধন (UDBODHAN), 122(11). pp. 1009-1012, 2020 Agniv Dutta, A Critical Review of Translation and Literary History: An Indian View by Ganesh Devy and The Role of Translation in a Multilingual Society knitting India: Through Translation by Indra Nath Choudhuri, DURDAIBA, Vol-4(1), ISSN: 2394-9090

**Annual Report 2020-2021**

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:**

**A. Books/Monographs Published :**

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Samir Karmakar and Sunandan Kumar Sen	ITIHAS NIRMAN O ARYA SAMASSHYA	Ananda Publishers		2020

**B. Books/Monographs Edited :**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Atanu Saha, Indranil Dutta, Samir Karmakar	Questions and Relative and Complement Clauses in a Bangla Grammar by Probal Dasgupta with a foreword by Richard Kayne	Jadavpur Journal of Languages and Linguistics	2581-494X	2020
Shankha Sanyal, Pijush Kanti Gayen, Ratul Ghosh (Guest Editors)	JJLL Special Issue from selected papers of International Conference cum Workshop on Rhythm in Speech and Music from Neuro-Cognitive Perspectives	Jadavpur Journal of Languages and Linguistics	2581-494X	2020
Atanu Saha, Indranil Dutta, Samir Karmakar	Jadavpur Journal of Languages and Linguistics, Volume 4, Issue 1	Jadavpur University	2581-494X	2020
Atanu Saha, Indranil Dutta, Samir Karmakar	Jadavpur Journal of Languages and Linguistics, Volume 4, Issue 2	Jadavpur University	2581-494X	2020
Patitpaban Pal	International Bilingual Journal of Culture, Anthropology & Linguistics (IBJCAL), VOL-2(1)	Patitpaban Pal	2582-4716	2020
Patitpaban Pal	International Bilingual Journal of Culture, Anthropology & Linguistics (IBJCAL), VOL-2(2)	Patitpaban Pal	2582-4716	2020
Patitpaban Pal	International Bilingual Journal of Culture, Anthropology & Linguistics (IBJCAL), VOL-3(1)	Patitpaban Pal	2582-4716	2020
Patitpaban Pal	কথাসাহিত্যে পেশাভিত্তিক পরিচয় ও কখনশৈলী : মানবাধিকার বনাম সামাজিক	Patitpaban Pal (self)	978-93-5321-520-0	2020

**Annual Report 2020-2021**

	স্বীকৃতি, দ্বিতীয় সংস্করণ eBook (Kathasahitye Peshabhittik Parichay O Kathanshaili : Manabadhikar Banam Samajik Swikriti, Edition-2)			
<b>Patitpaban Pal, Ratul Ghosh, Harichand Das</b>	Vol 3 No 1-2 (2021): IBWTL-1, 2020-2021 SPECIAL ISSUE	Patitpaban Pal	2582-4716	2021
<b>Atanu Saha</b>	Dictionary of the Kurmali Language	Jadavpur University 2021-22	978- 938366064 3	2021-22

**C. Seminar/Workshop/Conference/Symposium Organized:  
(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place,  
Duration)**

<b>Name of the Seminar/Workshop/Conference/Symposium</b>	<b>Name of the Coordinator (s)/ Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
IndoPhon Talk Series	Indranil Dutta	<a href="https://indophon.wixsite.com/india">https://indophon.wixsite.com/india</a>	Online	5 October-15 Decembr
International Conference on Communication, Cognition and Computation (IC3C-2021)	Soumya Sankar Ghosh Samir Karmakar	Conference Proceeding of "International Conference on Communication, Cognition and Computation (IC3C-2021)	Online jointly organized by School of Languages and Linguistics, Jadavpur University and VIT Bhopal University	29-31 January, 2021
International Bilingual Webinar on Tribal Lifestyle – One (IBWTL-1, 2020-2021)	Patitpaban Pal, Ratul Ghosh, Harichand Das	Special Conference edition of IBJCAL (e-ISSN# 2582-4716)	conducted in online mode as organised by International Bilingual Journal of Culture, Anthropology & Linguistics - IBJCAL (e-ISSN# 2582-4716) in collaboration with School of Languages and Linguistics, Jadavpur University	29-30 December, 2020 & 15 January, 2021.

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
---------------------------------	------------------------------	---	--------------	-----------------



**Annual Report 2020-2021**

<b>Prof. Indranil Dutta</b>	Invited lecture	International Conference on Communication, Computation & Cognition. Is Speech Special? Models of speech production and perception, and their role in shaping our understanding of how humans process speech	VIT	1 hour
<b>Dr. Samir Karmakar</b>	Invited lecture	Webinar on 'bhāṣātattba ki ebaṃ Kena?'	Rabindra Mahavidyala, Champadana, Hoogly	1½ hour
<b>Dr. Atanu Saha</b>	Invited lecture, Challenges of documenting lesser known and less studied languages	Webinar organized by Royal Global University	Guwahati	1½ hour
<b>Dr. Atanu Saha</b>	Challenges In Documenting The Linguistic Diversity Of The Less Studied Languages"	Refresher Course by Department of English, JU	Jadavpur University	15March (online mode)

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference/ Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Pijush Gayen in collaboration with Uddalak Sarkar, Spandan Chowdhury, Shankha Sanyal, Archi Banerjee, Samir Karmakar, &amp; Dipak Ghosh, D.</b>	Neural Processing of the Prosodic Features Related to Communicative Intent in Spoken Bengali Language.	International Conference of Psycholinguistic and Neurolinguistic Research: Methods, Materials, and Approaches, (PsyNeuroLing-2020),	NLU New Delhi, University of Salamanca & Real Academia Galega, Spain.	December 17-19, 2020.
<b>Spandan Chowdhury in collaboration with Shankha Sanyal, Samir Karmakar, &amp; Dipak Ghosh</b>	Perceptual Categorization of Events in Bengali Multi-verb Constructions.	International Conference of Psycholinguistic and Neurolinguistic Research: Methods, Materials, and Approaches, (PsyNeuroLing-2020),	NLU New Delhi, University of Salamanca & Real Academia Galega, Spain.	December 17-19, 2020.
<b>Lahari Chatterjee</b>	Word Order, Information Structure (and	International Conference on Communication,	VIT Bhopal and School of Languages	29-31 January, 2021

**Annual Report 2020-2021**

	Emotion): Phonological Rendering of Communicative Intent in Bangla.	Computation & Cognition (IC3C 2021)	and Linguistics, Jadavpur University	
<b>Ratul Ghosh in collaboration with Spandan Chowdhury, Shankha Sanyal, &amp; Samir Karmakar</b>	An Acoustic Study of Emotions expressed in Bengali Speech.	International Conference on Communication, Computation & Cognition, (IC3C- 2021),	VIT Bhopal University & Jadavpur University, India.	January 29 – 31, 2021.
<b>Arka Banerjee in collaboration with Diti Bhadra</b>	What gerunds tell us about deontic necessity	25th Sinn und Bedeutung (SuB 25)	University College London and Queen Mary University of London	3-9th September, 2020
<b>Arka Banerjee</b>	Embedding gerunds and QC clauses: A case of factivity alternation in Bangla	11th (Formal) Approaches to South Asian Languages (F)ASAL 11))	University of Minnesota	26-28 March, 2021
<b>Spandan Chowdhury</b>	Tense, Aspect and Situation Types in Mech.	Perspectives on Indigenous Minority Linguistic Groups: Issues, Challenges and Prospects	University of Kashmir, India.	26 – 27 August, 2020.
<b>Spandan Chowdhury, Pijush Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar, Dipak Ghosh</b>	An Acoustic Exploration Of Event Construals In Bengali Language	The 1st Biennial International Conference on Acoustics and Vibration (ANV 2020)	Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia	23 – 24 November, 2020.
<b>Spandan Chowdhury</b>	Syntactic Preference Patterns of Phrases denoting Emotion: A Case Study in Bengali & Hindi	The 56th Linguistics Colloquium, (LingColl-56),	Magdeburg- Stendal University of Applied Sciences and University of Mainz, Germany.	26 – 28 November, 2020
<b>Spandan Chowdhury</b>	Positional Preference of Emotion Phrase in Hindi.	Linguistweets- the first International Twitter Conference on Linguistics.	Brazilian Linguistics Association (ABRALIN)	5 December, 2020
<b>Sayani Banerjee, Samir Karmakar</b>	Ordering of Events in Mental Space of the Reader	International Conference on Communication, Computation &	SASL & SCSE of VIT Bhopal University and SLL,	29 -31 January, 2021

## Annual Report 2020-2021

		Cognition (IC3C - 2021)	Jadavpur University	
<b>Atanu Saha</b>	Eliciting Tam In Bodo-Koch And Kherwarian Languages	International conference on Law, Language and Cultural Empowerment	The University of Sydney	20-21 July, 2020

### H. **Any Other Seminar/Workshop/Conference/Symposium/Course attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Lahari Chatterjee</b>	Selected and participated in ACM Winter School on Natural Language Processing (based on Data Structure, Algorithm and Python)	Online organized by Dhirubhai Ambani Inst. of Information & Communication Technology	4-15 January, 2021
<b>Patitpaban Pal</b>	Short Term Course on "Minority Languages in India; Elementary Education and Technology" In collaboration with Central Institute of Indian Languages, Mysuru	Department of Humanities & Social Sciences, Indian Institute of Technology Kharagpur	7-28 December, 2020
<b>Shankar Ram Barman</b>	Workshop on Bhasa O Bhasabigyan Chorchha	Department of Bangla, Manikchak College, Malda, West Bengal, India	2-11 November, 2020
<b>Atanu Saha</b>	Imagining Transnational Mobility of Students in the Post-COVID-19 Crisis” organized by International Affairs Office, Graduate School of Letters, Osaka University, Osaka (Japan) and IIT Patna	IIT Patna	1 August, 2020

### 6. **Major Achievements of the School during the year:**

#### D. **Any Other Major Achievements:**

- a. Ling Club, Jadavpur University - collaborated with the International Bilingual Journal of Culture, Anthropology & Linguistics (IBJCAL; e-ISSN# 2582 4716) to organise the 1st International Bilingual Webinar on Tribal Lifestyle (IBWTL-1) in association with the Society for Natural Language Technology Research under the aegis of the Dept. of IT & Electronics, Gov't of WB - on the 29-30 December, 2020 & 15 January, 2021
- b. Atanu Saha has been invited by the Adam Mickiewicz University in Poznan Poland to teach a course on language documentation during the ELLDo in Applied linguistics from 8 March, 2020 (online).

### 7. **Extension Activities of the School during the year:**

#### A. **Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

- a. A memorandum of understanding is signed between Jadavpur University and Ashoka University to promote China Studies / Sino-Tibetan Studies in Jadavpur University. Ashoka University and Harvard Yenching Institute (HYI) will provide the financial and academic support. Dr. Samir Karmakar is the coordinator at the Jadavpur University and Ms. Mahak Chajer represents Ashoka-HYI.

## Annual Report 2020-2021

- b. Dr Atanu Saha created open source content materials in language documentation and syntax for PG level students for Uttar Pradesh Higher Education Digital Library, the materials can be found at <http://heecontent.upsdc.gov.in/SearchContent.aspx>
- c. Dr Atanu Saha served as ICON Committee member 18-21 December, 2020 organized by IIT Patna.
- d. Dr Atanu Saha served as the external examiner at Gujarat University for the PH.D thesis on ERROR ANALYSIS OF ENGLISH WRITING OF MUSLIM UNDERGRADUATE STUDENTS OF AHMEDABAD

### B. Activities for the Society:

- a. During COVID 19, Dr. Samir Karmakar has actively participated in extending the educational facilities to the students belonging to the under privileged and tribal communities of West Bengal through an initiative called *prthibīr pāṭhśālā*. A report of the initiative can be found here: <https://www.telegraphindia.com/west-bengal/calcutta/basti-ki-pathshala-an-education-gap-widened-by-the-pandemic-and-amphan/cid/1792475>
- b. During lock down and in post Amphan period Dr. Samir Karmakar reached the distressed through Quarantined Students Youth Network (QSYN). A report on QSYN's work can be found here: [https://thefederal.com/states/east/west-bengal/kolkata-students-step-in-covid-fight-provide-relief-materials-to-labourers/?doing\\_wp\\_cron=1634006389.1761660575866699218750](https://thefederal.com/states/east/west-bengal/kolkata-students-step-in-covid-fight-provide-relief-materials-to-labourers/?doing_wp_cron=1634006389.1761660575866699218750)
- c. The research scholars of Neuro-Cognitive and Acoustic Lab, led by Prof. Dipak Ghosh and Dr. Samir Karmakar, are actively associated with the programs of Science Popularization in Indian languages in slums of Kolkata and the rural West Bengal.
- d. Rusa Bhowmick works in close contact with Rotaract Club during the Pandemic
- e. Patitpaban Pal. Official Assistant. Souralakshmi Memorial Trust. April, 2020 to March, 2021
- f. Dr Atanu Saha conducted a virtual data collection and study on Mahali Language and Culture in the month of December 2020 along with the PG 3rd Semester students.

### 8. Students Progression during the year:

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
NET	5 (NET-LS)+4(NET-JRF) = 9
GATE	6
Any Other	<input type="checkbox"/> 1 Phd Fellowship Leipzig University, Germany <input type="checkbox"/> 1 PhD in IIT Kharagpur <input type="checkbox"/> 2 PhDs in EFLU Hyderabad

## LASER SCIENCE & ENGINEERING

Phone: 033-2457-2487/2552

Director: Dr. Dipten Misra

E-mail: [dipten.misra@jadavpuruniversity.in](mailto:dipten.misra@jadavpuruniversity.in)

### 1. Vision and Mission of the School:

#### A. Vision:

School of Laser Science & Engineering (SLSE) aims to be a centre of excellence in laser science and technology and laser applications, with a research focus on basic research, laser applications in the

## Annual Report 2020-2021

industrial field and projects development. Establishing and expanding knowledge in the name of journal publications, lectures, organising workshops, conferences and training courses in the fields of laser technology and applications.

### B. **Mission:**

School of Laser Science & Engineering (SLSE), Jadavpur University (JU), established in March 2002 and the first of its kind in India, owes much indebtedness to National Laser Program (NLP), sponsored by the Department of Atomic Energy, Govt. of India in the Eighth Plan period, for setting up of Laser Material Processing Laboratory and formation of Laser Material Processing Group (LMPG), JU in 1992.

LMPG, JU following the foot prints of the stalwarts of National Council of Education (NCE), Bengal accepted the challenges of this new and emerging technology and came forward to help indigenous development of laser systems, workstations, process design, spreading awareness of this new technology amongst academicians, researchers, scientists and engineers from industries, R&D laboratories and institutions, and building manpower through courses, workshops, seminars, talks. The School is working to fulfil the following objectives.

1. Spreading awareness of using this emerging technology amongst the scientists, the engineers and the entrepreneurs.
2. Building up rapid manpower in this technology through encouraging collaborative activities amongst industries, R&D labs and institutions in all forms including offering courses of different durations to the engineers from the industries, entrepreneurs from small and medium scale industries, technicians, as well as UG/PG students of the universities.
3. Carrying out research program for development of laser systems, subassemblies, process design and mathematical modeling.

### 2. **Academic Activities:**

#### A. **Programmes offered:**

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Master of Technology in Laser Technology	Two (2)	1 <sup>st</sup> year	10
		2 <sup>nd</sup> year	12

### 4. **Research Activities:**

#### A. **Areas of Research Activities :(Broad Areas) :**

School of Laser Science & Engineering (SLSE) works on laser material processing such as laser ablation, laser drilling, laser cutting and laser welding; Laser processing of advanced materials, smart materials, functionally graded materials; Laser micro-machining (surface texturing, laser marking and laser engraving); Laser bending; Laser additive manufacturing; Numerical simulation on laser processing; Laser surface modifications; Designing of organic-inorganic nanocomposites and bio-nano-conjugate system to build artificial light energy light energy conversion, drug delivery and anti-pollutant devices.

#### B. **Major Research Projects:**

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Estimation of Laser ...Wind loads	Individual	Dipten Misra	Defence Research and Development Organisation (DRDO)	2019-2021

## Annual Report 2020-2021

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
N.A.	2

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

1. **Aparna D, Paramasivan K, Acherjee B, Mitra S**, Numerical simulation of the temperature field, weld profile, and weld pool dynamics in laser welding of aluminium alloy, *Optik*, 247, 2021
2. **Paramasivan K, Das S, Sundar M, Misra D**, Extended Studies on Bowl-shaped Laser Forming of 304 Stainless Steel Circular Plates Using a Spiral Scanning Scheme, *International Journal of Laser Science: Fundamental Theory and Analytical Methods*2(3-4), 221-246, 2021.
3. **Chakraborty M, Mitra I, Roy AJ, Paul S, Saha A, Show B, Das S, Chakraborty PK, Ganguly T**, Contrasting Spectroscopic Response Of Human Hemoglobin In Presence of Graphene Oxides and Its Reduced Form: Comparative Approach With Carbon Quantum Dots. *SpectrochimicaActaPartA*,247, 119079, 2021.
4. **Chakraborty M, Ganguly T**, Nature of secondary structural alterations of Human Hemoglobin during interactions with gold nanoparticle and reduced graphene oxide Indian J Theo Phys 2020, 68 (Nos 1&2)
5. **Chakraborty M, Ganguly T**, Role of Hemoglobin as a representative protein for effective bimolecular interactions with Graphene oxide and Gold nanostar Bull Laser and Spectroscopy Society of India 2020, 26, 11-31
6. **Chakraborty M, Ganguly T**, Adjustments in microenvironment of human Hemoglobin upon interactions with members of Gold and Carbon nano family Karnatak University Journal of Science 2020. 51, 28-39
7. **Paramasivan K, S. Das, S. Marimuthu, D. Misra**, Selection of process parameters of AISI 304 for laser processing of materials, International Journal of Computational Materials Science and Surface Engineering Volume 9, Issue 1, 1-21 (2020)
8. **Paramasivan K, D. Misra S. Dey**, Design of a Heat Dissipation System for a Low Power Fibre Laser, International Journal of Laser Science: Fundamental Theory and Analytical Methods Volume 2, Issue 1, 53-70 (2020)
9. **Paramasivan K, S. Das, S. Marimuthu, D. Misra**, Bowl-shaped Laser Forming of 304 Stainless Steel Circular Plates Using Radial Heating, International Journal of Laser Science: Fundamental Theory and Analytical Methods, Volume 2, Issue 1, 31-52 (2020)

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Paul S, Duggirala A, Mitra S, Study of Laser Beam Welding of AA 2024 Using Taguchi Methodology. In 2020 IEEE India Council International Subsections Conference (INDISCON) (pp. 248-253). IEEE., 3-4 October, 2020.
2. Rituparna G. Artificial Intelligence and Speech Technology: Proceedings of the 2nd International Conference on Artificial Intelligence and Speech Technology, (AIST2020), Delhi, India, CRC Press, 19-20 November, 2020.
3. Rituparna G. Parametric Study of Through Transmission Laser Welding using Particle Swarm Optimization. 6th International Conference on Inventive Computation Technologies (ICICT), IEEE, ISBN:978-1-7281-8502-6, 20-22 January, 2021.
4. Koushik M, Paramasivan K, Souradip P, Misra D, Plate distortions during fiber laser trepanning cutting of AISI 304 stainless steel, *International Conference on Recent Advancements in Mechanical*

## Annual Report 2020-2021

- Engineering (ICRAME 2021)*, Francis Xavier Engineering College - Tirunelveli, India, 31 March, 2021.
5. Richa G, Paramasivan K, Misra D, Numerical simulation and parametric study of laser drilling of titanium alloy Ti-6Al-4V, *International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021)*, Francis Xavier Engineering College - Tirunelveli, India, 31 March, 2021.
  6. Aritra G, Paramasivan K, Misra D, Sanjib A, Experimental investigation on the effect of pulse width on laser welding of 2205duplex stainless steel, *International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021)*, Francis Xavier Engineering College - Tirunelveli, India, 31 March, 2021.
  7. Rupam R, Dipayan C, Misra D, Paramasivan K, Development of 3D printed ASA polymer parts by fused deposition modeling, *International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021)*, Francis Xavier Engineering College - Tirunelveli, India, 31March, 2021.

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### A. Books/Monographs Published :

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Paramasivan K, S. Das, S. Marimuthu, D. Misra	Temperature Gradient-Based Laser Bending of Full Plates and Plates With Cutout	IGI Global	9781799818311	2020

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Prof. Souren Mitra	Invited Speaker	Recent Advances in Mechanical Engineering / Manufacturing Technology	Mechanical Engineering Department, Haldia Institute of Technology	1-Day Webinar (22 November, 2020)
Prof. Tapan Ganguly	Invited Speaker	National Seminar on "Recent Development and Future Challenges in Chemical Science"	Department of Chemistry, Behala College, Kolkata and Royal Society of Chemistry, Eastern India Section, Kolkata	2020
Prof. Tapan Ganguly	Invited Speaker	Refresher course on "Recent developments in Science & Technology"	University of Burdwan, India	2021

#### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
--------------------------	--------------------	----------------------------------	-------	----------

### Annual Report 2020-2021

<b>Aparna Duggirala</b>	Study of Laser Beam Welding of AA 2024 Using Taguchi Methodology	2020 IEEE India Council International Subsections Conference (INDISCON) (pp. 248(pp. 248-253). IEEE.	Visakhapatnam, India	3-4 October, 2020
<b>Rituparna Ghosh</b>	Artificial Intelligence and Speech Technology	Proceedings of the 2nd International Conference on Artificial Intelligence and Speech Technology, (AIST2020)	Delhi, India	19-20 November, 2020
<b>Rituparna Ghosh</b>	Parametric Study of Through Transmission Laser Welding using Particle Swarm Optimization.	. 6th International Conference on Inventive Technologies (ICICT), ISBN: 978-1-7281-8502-6. IEEE	Coimbatore, India	20-22 January, 2021
<b>Koushik Mondal</b>	Plate distortions during fiber laser trepanning cutting of AISI 304 stainless steel	International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021), Francis Xavier Engineering College	Tirunelveli, India	31 March, 2021
<b>Richa Ghosh</b>	Numerical simulation and parametric study of laser drilling of titanium alloy Ti-6Al-4V	International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021), Francis Xavier Engineering College	Tirunelveli, India	31 March, 2021
<b>Aritra Ghosh</b>	Experimental investigation on the effect of pulse width on laser welding of 2205 duplex stainless steel	International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021), Francis Xavier Engineering College	Tirunelveli, India	31 March, 2021
<b>Rupam Rakshit</b>	Development of 3D printed ASA polymer parts by fused deposition modeling	International Conference on Recent Advancements in Mechanical Engineering (ICRAME 2021), Francis Xavier Engineering College	Tirunelveli, India	31 March, 2021

**6. Major Achievements of the School during the year:**

**C. Awards received by Research Scholars/students:**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
<b>Rituparna Ghosh</b>	Teaching Assistantship / Research Assistantship	Drexel University	USA
<b>Richa Ghosh</b>	Teaching Assistantship	Iowa State University	USA



## Annual Report 2020-2021

<b>Dipayan Chakraborty</b>	Research Assistantship	Indian Institute of Technology, Tirupati	Tirupati, India
----------------------------	------------------------	--	-----------------

**7. Extension Activities of the School during the year:**

**A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.:**

Prof. Souren Mitra acted as Member of BOS of Mechanical Engg. Department, Haldia Institute of Technology

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
1. Dipayan Chakraborty	Master of Technology in Laser Technology	Ph.D	Indian Institute of Technology, Tirupati
2. Richa Ghosh	Master of Technology in Laser Technology	Ph.D	Iowa State University, USA
3. Rituparna Ghosh	Master of Technology in Laser Technology	Ph.D	Drexel University, USA

**B. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
GATE	2
GRE	1
TOFEL	2
State Government Services	1
Any Other (Central )	2

## MATERIAL SCIENCE & NANO TECHNOLOGY

Phone: 033-2457-3028/2183/2327

Director: Dr. Chandan Kumar Ghosh

Dr. Sourav Sarkar (since 1.3.2021)

E-mail: [dir.nanotech@jadavpuruniversity.in](mailto:dir.nanotech@jadavpuruniversity.in)

**1. Vision and Mission of the School:**

**A. Vision:**

The School of Material Science and Nanotechnology is actively engaged in carrying out cutting edge research in various areas of Nanoscience and Nanotechnology. It may be mentioned that Nanoscience and Technology is one of the major thrust areas of research in our University since the last two decades. We have proven track record of performing high quality research which is reflected from our list of publications and other credential. More than 30 faculty members from Engineering and Science faculties are engaged in the activity of the School. The School is also offering an M.Tech course on Nanoscience and Technology since 2004. The main vision of the School is to carry out cutting edge research in Nanoscience and Technology and also to produce qualified manpower.

## Annual Report 2020-2021

### 2. Academic Activities:

#### C. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M.tech in Nanoscience and Technology	02	1 <sup>st</sup> year	27
		2 <sup>nd</sup> year ...	18

### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
	02	01	03

### 4. Research Activities:

#### A. Areas of Research Activities:(Broad Areas)

- Nanomaterials and density functional theory
- Optical and catalytic properties of nanomaterials
- Nanomagnetism
- Density functional theory
- Antibacterial activity
- Synthesis of Nanomaterials and Nanocomposites
- Process Development of Metal Extraction
- Thermodynamics and kinetics
- Nano biotechnology

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Size Selective Carbon Quantum Dots and its Application to Luminescence and Solar Cell	Individual	Dr. Sourav Sarkar	SERB	2019-22
Synthesis of drug (herbal values) entrapped nano material to treat cancer disease & other disease causing organisms	Individual	Dr. Mahua Ghosh Chaudhuri	WBDST	2018-2021
Design of nanocarriers for sustained release of conventional analgesic drugs	Individual	Dr. Mahua Ghosh Chaudhuri	WBDST	2018-2021
DST Nanomission project in Nanoscience & Technology for PG teaching and Research	Departmental	Dr. Kalyan Kumar Chattopadhyay	DST-Nano Mission	2015 -2021

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):****(Name of authors, Title of the article, Name of the Journal, Volume No.,Page No/Article No.,Year of publication)**

1. Bioactive silver phosphate/polyindolenanocomposites, Soumik Podder, Samrat Paul, Piyali Basak, Bowen Xie, Nigel J. Fullwood, Sara J. Baldock, Ying Yang, John G. Hardy and **Chandan Kumar Ghosh**, *RSC Advances* **10**, 11060 (2020).
2. Green biosynthesis of silver nanoparticles using *Dregeavolubilis* flowers: Characterization and evaluation of antioxidant, antidiabetic and antibacterial activity, Bhaskar Das, Arnab De, Soumik Podder, Shilpa Das, Chandan Kumar Ghosh and Amallesh Samanta, *Inorganic and Nano-Metal Chemistry* **51**, 1066 – 1079 (2021).
3. Effect of annealing on the defect-mediated blue phosphorescence in ZnO nanocrystals, Sagnik Das, Uttam Kumar Ghorai, Rajib Dey, **Chandan Kumar Ghosh**, Mrinal Pal, *RSC Advances* **11**, 335 (2021).
4. Intense orange emission from hydrothermally synthesized ZnO flower-like structure: effect of charge carrier – LO phonon interaction on emission characteristics, Joyeta Raha, Nibedita Haldar, **Chandan Kumar Ghosh**, *Applied Physics A* **127**, 163 (2021).
5. Mononuclear copper (II) Schiff base complex: synthesis, structure, electrical analysis and protein binding energy, Mrinmoy Ghosh, NayimSepay, Corrado Rizzoli, **Chandan Kumar Ghosh**, Abhijit Banerjee, Sandip Saha, *New Journal of Chemistry* **45**, 2995 – 3006 (2021).
6. Dual role of copper nanoparticles in Bacterial Leaf Blight infected rice: a therapeutic and metabolic approach, Tapodhara Datta Majumdar, **Chandan Kumar Ghosh**, Abhishek Mukherjee, *ACS Agricultural Science and Technology* (accepted, 2021).
7. N-type TiO<sub>2</sub> based re-usable sensor for light assisted Cd(II) ion detection, Monikuntala Bhattacharya, Sayan Dey, **Chandan Kumar Ghosh**, *IEEE Transactions on Electron Devices*, **68**, 2951 – 2956, 2021.
8. Various theranostics and immunization strategies based on nanotechnology against Covid-19 pandemic: an interdisciplinary view, Sujan Chatterjee, Snehasis Mishra, Kaustav Dutta Chowdhury, **Chandan Kumar Ghosh** and Krishna Das Saha, *Life Sciences*, **278**, 119580, 2021.
9. Selective amino acid detection by green synthesized copper nanoparticles prepared using basil (*Ocimumtenuiflorum*) flower extract, Kaushik Roy, **C. K. Ghosh**, C. K. Sarkar, *Microsystem Technologies*, **27**, 353–357, 2021.
10. Application of Zinc Sulphide Nanoparticles to Augment Nutritional Status of Mungbean (*Vignaradiata*) Plant, Mala Thapa, Tapodhara Dattamajumdar, **Chandan Kumar Ghosh**, Abhishek Mukherjee, Prasanta Biswas, *ACS Food Science & Technology* (accepted 2021).
11. S. Ghosh, M. Samanta, D. Sen, S. Sarkar, **S. Sarkar**, K.K.Chattopadhyay, Photocatalytic and sonocatalytic dye degradation by sulfur vacancy rich ZnSnanopowder. *J Nanopart Res* **23**, 160 (2021).
12. **S. Sarkar**, U.Ray, D. Roy, D. Banerjee, K. K Chattopadhyay, Synthesis of silicon nanowire and crystalline carbon quantum dots heterostructure and study of photo response and photo luminescence property, *Materials Letters*, Volume 303, 2021, 130493
13. Shrabani Ghosh, Madhupriya Samanta, Biswajit Das, Supratim Maity, Promita Howli, **Sourav Sarkar**, K.K. Chattopadhyay, Hexagonal nickel selenidenano flakes decorated carbon fabric: An efficient binder-free water loving electrode for electrochemical water splitting, *Solid State Sciences*, Volume 116, 2021, 106613
14. Shrabani Ghosh, Supratim Maity, Ankita Chandra, Bikram Kumar Das, Nripen Besra, Samrat Sarkar, **Sourav Sarkar**, K.K. Chattopadhyay, Enhanced electron emission from ternary solid solution-MWCNT hybrid with theoretical validation, *Materials Science in Semiconductor Processing*, Volume 127, 2021, 105674
15. Ankita Chandra, Supratick Giri, Biswajit Das, Shrabani Ghosh, **Sourav Sarkar**, K.K. Chattopadhyay, NIR photodetector based on p-silicon nanowires/n-cadmium sulfide nanoscale junctions, *Applied Surface Science*, Volume 548, 2021, 149256

## Annual Report 2020-2021

16. Temperature-dependent site selection of boron doping in chemically derived graphene, Saikat Sarkar, Rajarshi Roy, Bikram Kumar Das and Kalyan Kumar Chattopadhyay, **Carbon**, **184**, (2021), 253. **IF. 9.59**
17. Electrochemical Performance of 3D Network CsPbBr<sub>3</sub> Perovskite Anodes for Li-Ion Batteries: Experimental Venture with Theoretical Expedition, T Paul, S Maiti, BK Chatterjee, P Bairi, BK Das, S Thakur and K.K. Chattopadhyay, **The Journal of Physical Chemistry C** **125** (2021), 16892-16902. **IF. 4.12**
18. Nanoporous nitrogen-doped graphitic carbon hollow spheres with enhanced electrochemical properties, Partha Bairi, Kausik Sardar, Madhupriya Samanta, Kausik Chanda and Kalyan Kumar Chattopadhyay, **Mater. Chem. Front.**, 2021, **5**, 7645-7653, **IF. 6.48**.
19. All-inorganic CsPbBr<sub>3</sub> perovskite as potential electrode material for symmetric supercapacitor, S Thakur, T Paul, S Maiti, K.K Chattopadhyay, **Solid State Sciences**, **122** (2021), 106769. **IF. 3.05**
20. Photo tuned electron field emission from vertically aligned CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> nanorods grown in AAO template, N Besra, S Maity, KK Chattopadhyay, **Journal of Physics and Chemistry of Solids**, (2021), 110457 (in Press), doi10.1016/j.jpics.2021.110457. **IF. 3.99**
21. Observation of polarization dependent excitonic luminescence in few-layered WS<sub>2</sub> flakes, R Roy, S Das, N Mazumder, D Roy, K.K Chattopadhyay, **Chemical Physics Letters** **781**, (2021) 139012. **IF. 2.32**
22. SrTiO<sub>3</sub>: Sm<sup>3+</sup>, Na<sup>+</sup>-co-doped orange-emitting nanophosphor for pc-WLEDs, A Santra, N Chakraborty, K Panigrahi, KK Chattopadhyay, UK Ghorai, **Journal of Materials Science: Materials in Electronics**, (2021), 1-15, (In Press). doi.org/10.1007/s10854-021-06876-5, **IF. 2.4**
23. Hexagonal nickel selenide nanoflakes decorated carbon fabric: An efficient binder-free water loving electrode for electrochemical water splitting, S Ghosh, M Samanta, B Das, S Maity, P Howli, S Sarkar and K.K. Chattopadhyay, **Solid State Sciences** **116**, (2021) 106613. **IF. 3.05**
24. Synthesis of Silicon Nanowire and Crystalline Carbon Quantum Dots heterostructure and Study of Photo response and Photoluminescence Property, Sourav Sarkar; Unmesha Ray; Dipayan Roy; Diptonil Banerjee; K.K. Chattopadhyay, **Materials Letters**, (2021), 303, 130493. **IF. 3.42**
25. Calcination temperature dependent dielectric properties of nanocrystalline BaSnO<sub>3</sub>, Suvra Pal, Nirmalya S. Das, Brahami Das, Subhadipta Mukhopadhyay and Kalyan K. Chattopadhyay, **ECS Journal of Solid State Science and Technology**, (2021), 10, 071018. **IF. 2.07**
26. Photocatalytic and sonocatalytic dye degradation by sulfur vacancy rich ZnSnanopowder, Shrabani Ghosh, Madhupriya Samanta, Dipayan Sen, Samrat Sarkar, Sourav Sarkar, K. K. Chattopadhyay, **Journal of Nanoparticle Research** (2021) **23**, 160. **IF. 2.13**
27. Field-enhanced polarization in polytype ferric oxides: confronting anisotropy in dielectric ellipsoid dispersion, Souvik Bhattacharjee, Anibrata Banerjee and Kalyan Kumar Chattopadhyay, **Journal of Physics D: Applied Physics** (2021), **54**, 29, 295301. **IF. 3.2**
28. Boron Vacancy: A strategy to boost the Oxygen Reduction Reaction of hexagonal boron nitride nanosheet in hBN-MoS<sub>2</sub> heterostructure, Dipayan Roy, Karamjyoti Panigrahi, Bikram K. Das, Uday K. Ghorui, Souvik Bhattacharjee, Madhupriya Samanta, Sourav Sarkar and Kalyan K. Chattopadhyay, **Nanoscale Advances**, (2021), **3**, 4739. **IF. 4.55**
29. Generation of stable thermal gradient by solar energy harvesting in porous cobalt oxide based nanofluid, Dipanwita Mitra, Kalyan Kumar Chattopadhyay and Paramita Chattopadhyay, **Sustainable Energy Technologies and Assessments**, (2021), **47**, 101390. **IF. 5.35**
30. Hierarchical Assembly of MnO<sub>2</sub> Nanosheet on CuCo<sub>2</sub>O<sub>4</sub> Nanoflake over Fabric Scaffold for Symmetric Supercapacitor, Kausik Chanda, Soumen Maiti, Samrat Sarkar, Partha Bairi, Subhasish Thakur, Kausik Sardar, Nripen Besra, Nirmalya Sankar Das, and Kalyan Kumar Chattopadhyay, **ACS Applied Nanomaterials**, (2021) **4**, 1420. **IF. 3.93**
31. Amalgamation of MnWO<sub>4</sub> nanorods with amorphous carbon nanotubes for highly stabilized energy efficient supercapacitor electrode, Kausik Sardar, Subhasish Thakur, Soumen Maiti, Nripen Besra, Partha Bairi, Kausik Chanda, Gautam Majumdar and Kalyan Kumar Chattopadhyay, **Dalton Transactions**, (2021), **50**, 5327. **IF. 4.17**

## Annual Report 2020-2021

32. Hierarchical nickel sulphide microstructures for controlled water disinfection and cold cathode emission ,  
Rimpa Khan, Nirmalya Sankar Das, Biswajit Das, Brahami Das and Kalyan Kumar Chattopadhyay, **Journal of Photochemistry & Photobiology, A: Chemistry, (2021), 412, 113212. IF. 4.29**
33. NIR photodetector based on p-silicon nanowires/n-cadmium sulfide nanoscale junctions, Ankita Chandra, Supratick Giri, Biswajit Das, Shrabani Ghosh, Sourav Sarkar, K.K.Chattopadhyay, **Applied Surface Science, (2021) 548, 149256. IF. 6.7**
34. Morphology tuning of bismuth oxychloridenano- crystals by citric acid variation: application in visible light-assisted dye degradation and hydrogen evolution by electrochemical method, Ratna Sarkar, Dipayan Roy, Dimitra Das, Subrata Sarkar and Kalyan K. Chattopadhyay, **International Journal of Hydrogen Energy, (2021), 46, 16299. IF. 5.81**
35. Experimental observation of valence band dispersion and increased hole conductivity in  $\text{CuCr}_{(1-x)}\text{Li}_x\text{O}_{(2-y)}$  Sy, Prasanta Mandal, Nilesh Mazumder, Subhajit Saha, Uttam Kumar Ghorai, Rajarshi Roy, Gopes Chandra Das, Kalyan Kumar Chattopadhyay, **Current Applied Physics (2021), 25, 90-96. IF. 2.28**
36. Copper (II) phthalocyanine (CuPc) based optoelectronic memory device with multilevel resistive switching for neuromorphic application, Biswajit Das, Madhupriya Samanta, Pranab Sarkar, Uttam K. Ghorai, Abhijit Mallik and Kalyan K. Chattopadhyay, **Advanced Electronic Materials, (2021), 7, 2001079. IF. 6.59**
37. New Class of Trimetallic Oxide Hierarchical Mesoporous Array on Woven Fabric: Electrode for high-Performance and Stable battery type Ultracapacitor, Subhasish Thakur, Soumen Maiti, KausikSardar, Kausik Chanda, Nripen Besra, Partha Bairi, Karamjyoti Panigrahi, Tufan Paul and Kalyan Kumar Chattopadhyay, **Journal of Energy Storage, (2021), 35, 102249. IF. 3.76**
38. Enhanced electron emission from ternary solid solution-MWCNT hybrid with theoretical validation, Shrabani Ghosh, Supratim Maity, Ankita Chandra, Bikram Kumar Das, Nripen Besra, Samrat Sarkar, Sourav Sarkar and Kalyan Kumar Chattopadhyay, **Materials Science in Semiconductor Processing, (2021), 127, 105674. IF. 3.08**
39.  $\text{CH}_3\text{NH}_3\text{PbI}_3$  as a radio-frequency decoupling capacitor: Interplay between Maxwell-Wagner polarization and pseudo inductive response, Nripen Besra, Kausik Sardar, Nilesh Mazumder, Souvik Bhattacharjee, Anjan Das, Bikram Das, Saikat Sarkar, Kalyan Kumar Chattopadhyay, **Journal of Physics D: Applied Physics, (2021), 54, 175105. IF. 3.2**
40. Incorporation of  $\text{V}_2\text{O}_5$  nanorods into perovskitephotodetectors as an alternative approach to enhance device performance: a step towards stability against ambient water species, Nripen Besra, Kausik Sardar, Soumen Maiti, Pranab Kumar Sarkar, Tufan Paul, Subhasish Thakur, Gautam Majumdar and Kalyan Kumar Chattopadhyay, **Dalton Transactions, (2020) 44, 15788. IF. 4.17**
41. Role of various transport layer and electrode materials in enhancing performance of stable environment-friendly  $\text{Cs}_2\text{TiBr}_6$  solar cell, Madhupriya Samanta, Sk Ijaz Ahmed, Kalyan K. Chattopadhyay and Chayanika Bose, **Optik (2020) 217, 164805. IF. 2.18**
42. Multilevel programming and light-assisted resistive switching in halide tunable all-inorganic perovskite cube for flexible memory devices, Tufan Paul, Pranab Kumar Sarkar, Soumen Maiti, and Kalyan Kumar Chattopadhyay, **ACS Applied Electronic Materials (2020), 2, 3667. IF. 3.31**
43. Luminescence properties of nano and bulk  $\text{ZnWO}_4:\text{Eu}^{3+}$  Phosphor for solid state lighting applications, Rituparna Chatterjee, Gopes Das and Kalyan Kumar Chattopadhyay, **Materials Research Express, 7, 074002, 2020. IF. 1.91**
44. V doped  $\text{BaSnO}_3$  nanocubes as a Field emitting material: Experimental and theoretical investigation; Suvra Pal, Nirmalya Sankar Das, Brahami Das, Bikram Kumar Das, Subhadipta Mukhopadhyay and Kalyan Kumar Chattopadhyay; **Applied surface science (2020), 530, 147102. IF. 6.7**
45. Shape-Shifting via Salt Crystallization: Conversion of Nanostructured Polymer into Site-Selective Nitrogen-Doped Carbon Sheet with Enhanced Supercapacitive Performance; Partha Bairi, Kausik Sardar, Kausik Chanda, Madhupriya Samanta, Subhasish Thakur, Karamjyoti Panigrahi, Saikat Sarkar, Tufan Paul and Kalyan Kumar Chattopadhyay; **ACS Applied Energy Materials (2020), 3, 6, 5984-5992. IF. 4.47**

## Annual Report 2020-2021

46. Luminescence properties of nano and bulk ZnWO<sub>4</sub>:Eu<sup>3+</sup> Phosphor for solid state lighting applications; Rituparna Chatterjee, Gopes Das and Kalyan Kumar Chattopadhyay; **Materials Research Express (2020) 7, 074002. IF. 4.47**
  47. Yellow emitting Fe<sub>3</sub>O<sub>4</sub>/ZnS hybrid: a probe for in vitro dermatoglyphics and anti-counterfeiting applications; Antika Das, Karamjyoti Panigrahi, Subhajit Saha, Bikram Kumar Das, Nirmalya Das, Saikat Sarkar, Rituparna Chatterjee and K.K. Chattopadhyay; **Materials Research Bulletin (2020), 131, 110966. IF. 4.01**
  48. Size-modulation of functionalized Fe<sub>3</sub>O<sub>4</sub>: Nanoscopic customization to devise resolute piezoelectric nanocomposites; Souvik Bhattacharjee, Nilesh Mazumder, Suvankar Mondal, Karamjyoti Panigrahi, Anibrata Banerjee, Dimitra Das, Saikat Sarkar, Dipayan Roy, and Kalyan Kumar Chattopadhyay; **Dalton Transactions, (2020), 49, 23, 7872-7890. IF. 4.17**
  49. Strain-induced partial phase transition in TiO<sub>2</sub> nanoparticles manifesting frequency dispersive pseudo-inductive switching of capacitance; Dipanwita Mitra, Souvik Bhattacharjee, Nilesh Mazumder, Bikram Kumar Das, Paramita Chattopadhyay, and Kalyan Kumar Chattopadhyay; **Ceramics International, (2020) 46, 12, 20437-20447. IF. 4.52**
  50. Site specific nitrogen incorporation in reduced graphene oxide using imidazole as a novel reducing agent for efficient oxygen reduction reaction and improved supercapacitive performance; Dipayan Roy, Kaustav Bhattacharjee, Karamjyoti Panigrahi, Bikram Kumar Das, Kaushik Sardar, Sourav Sarkar and Kalyan Kumar Chattopadhyay; **Carbon (2020), 166, 361-373. IF. 9.59**
  51. Human Motion Interactive Mechanical Energy Harvester Based on All Inorganic Perovskite-PVDF Nano Energy; Suvankar Mondal, Tufan Paul, Soumen Maiti, Bikram Kumar Das and Kalyan Kumar Chattopadhyay; **Nano Energy (2020), 74, 104870. IF. 17.88**
  52. MoSe<sub>2</sub>-amorphous CNT hierarchical hybrid core-shell structure for efficient hydrogen evolution reaction; Supratim Maity, Biswajit Das, Madhupriya Samanta, Bikram Das, Shrabani Ghosh and K.K. Chattopadhyay; **ACS Applied Energy Materials (2020), 3, 5, 5067-5076. IF. 4.47**
  53. Dielectric and piezoelectric augmentation in self-poled magnetic Fe<sub>3</sub>O<sub>4</sub> / Poly (vinylidene fluoride) composite nanogenerators; Souvik Bhattacharjee, Suvankar Mondal, Anibrata Banerjee and K. K. Chattopadhyay; **Materials Research Express (2020), 7, 4, 044001. IF. 4.47**
  54. Novel Ag<sub>2</sub>O-Ga<sub>2</sub>O<sub>3</sub> type II p-n heterojunction as an efficient water cleanser for green cleaning technology; Brahami Das, Biswajit Das, Nirmalya Sankar Das, Suvra Pal, Bikram Kr Das, Subrata Sarkar and K.K. Chattopadhyay; **Applied Surface Science (2020), 515, 145958. IF. 6.7**
  55. Ambient Processed CsPbX<sub>3</sub> Perovskite Cubes for Photocatalysis; Sayantani Das, Tufan Paul, Soumen Maity and K.K. Chattopadhyay; **Materials Letters (2020), 267, 127501. IF. 3.42**
  56. 3D network of V<sub>2</sub>O<sub>5</sub> for flexible symmetric supercapacitor; Karamjyoti Panigrahi, Promita Howli and Kalyan Kumar Chattopadhyay; **Electrochimica Acta (2020), 337, 135701. IF. 6.21**
  57. Size and phase dependent thermal conductivity of TiO<sub>2</sub>-water nanofluid with theoretical insight; Dipanwita Mitra, Promita Howli, Bikram Kumar Das, Nirmalya Sankar Das, Paramita Chattopadhyay and K. K. Chattopadhyay; **Journal of Molecular Liquids (2020), 302, 112499. IF. 6.16**
  58. Hollow Micro-spherical Bismuth Oxy-chloride for Superior Visible Light Induced Dye-sensitized Photocatalytic Activity and its Theoretical Insight; Ratna Sarkar, Dimitra Das, Bikram Kumar Das, Anuradha Mitra, Nirmalya Sankar Das, Subrata Sarkar and K. K. Chattopadhyay; **Materials research Bulletin (2020), 125, 110778. IF. 4.01**
  59. Negative capacitance switching in size-modulated Fe<sub>3</sub>O<sub>4</sub> nanoparticles with spontaneous non-stoichiometry: confronting its generalized origin in non-ferroelectric materials; Souvik Bhattacharjee, Anibrata Banerjee, Nilesh Mazumder, Kausik Chanda, Saikat Sarkar, Kalyan Kumar Chattopadhyay; **Nanoscale (2020), 12, 3, 1528-1540. IF. 7.79**
- E. Research Articles Published in Edited Volumes during the year:**  
(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no. Name of the Publisher, ISBN/ISSN No., Year)

## Annual Report 2020-2021

1. Ghosh S., Chandra A., Sarkar S., Chattopadhyay K.K. (2021) Silicon Nanowires as a Potential Material for Terahertz Applications. In: Acharyya A., Das P. (eds) Advanced Materials for Future Terahertz Devices, Circuits and Systems. Lecture Notes in Electrical Engineering, vol 727, **Springer**, Singapore.  
[https://doi.org/10.1007/978-981-33-4489-1\\_10](https://doi.org/10.1007/978-981-33-4489-1_10)
2. **Carbon nanostructures based composite for energy related applications**, Shrabani Ghosh, Supratim Maity, K. K. Chattopadhyay, in the book Toughened Composites: Micro Macro Systems, (**CRC Press**), In press, (2021)
3. Thermoelectric Materials: Improving Energy Efficiency and Decreasing CO<sub>2</sub> Emissions, Diptonil Banerjee, Kalyan K Chattopadhyay, Encyclopedia of Renewable and Sustainable Materials, (**Elsevier**), (2020).
4. Nanofluid in Energy Harvesting and Related Applications, Mitra, K.K Chattopadhyay, P. Chattopadhyay (Elsevier) 2020

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. Sourav Sarkar presented a paper entitled “Synthesis of Silicon Nanowire and Carbon Quantum Dot Heterostructure and Study of Its Photoresponse and Photoluminescence Property” in 6<sup>th</sup> International Conference on Nanoscience and nanotechnology organised by SRM University from 01.02.2021-03.02.2021
2. Sodium borohydride assisted reduction of toxic pollutants by silver coordinated melamine based polymeric material, D Das, R Sarkar, S Mukherjee, KK Chattopadhyay, **Materials Today: Proceedings 44**, 444-452 (2021).
3. Microwave-assisted rapid preparation of ZnSnanosphere for latent fingerprint detection and anti-counterfeiting applications, A Das, KK Chattopadhyay, **AIP Conference Proceedings 2265** (1), 030051 (2020)
4. Well-dispersed amorphous carbon nanotube-alumina nanocomposite for nanofluid with improved thermal conductivity, SK Sarkar, A Jha, KK Chattopadhyay, **AIP Conference Proceedings 2269** (1), 030072.
5. BaSnO<sub>3</sub> nanoparticles as blue emitting phosphor and efficient photocatalyst, S Pal, NS Das, B Das, B Das, S Mukhopadhyay, KK Chattopadhyay, **AIP Conference Proceedings 2220** (1), 020014 (2020).
6. Impact of morphological change on improvement of photo-catalytic behavior of Co<sub>3</sub>O<sub>4</sub> based system, D Mitra, R Sarkar, KK Chattopadhyay, P Chattopadhyay, **AIP Conference Proceedings 2220** (1), 020029 (2020).
7. Polypyrrole decorated amorphous CNT: A potential ORR electrocatalyst in alkaline medium, S Maity, M Samanta, T Roychowdhury, S Rakshit, KK Chattopadhyay, **AIP Conference Proceedings 2220** (1), 080039.
8. Efficient photocatalytic activity of bismuth oxyhalides with preferentially oriented (210) facets under visible light, R Sarkar, D Das, B Das, S Sarkar, KK Chattopadhyay, **AIP Conference Proceedings 2220** (1), 020030 (2020).
9. Facile preparation of porous Ga<sub>2</sub>O<sub>3</sub> nano/microbars for highly efficient photocatalytic degradation, B Das, B Das, S Pal, R Sarkar, NS Das, S Sarkar, KK Chattopadhyay, **AIP Conference Proceedings 2220** (1), 020013.

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. K.K. Chattopadhyay</b>	Keynote address	International Webinar entitled ‘Advanced	NIT Durgapur.	26 November, 2021

**Annual Report 2020-2021**

		Hybrid Materials for Sustainability		
<b>Prof. K.K. Chattopadhyay</b>	Keynote address	Refresher course on Recent Advances on Nanotechnology	Burdwan University	26 November, 2021
<b>Prof. K.K. Chattopadhyay</b>	Invited Lecture	Webinar Internship Course of Emerging Trends in Nanomaterials for Different Device Architectures (ETNDDA-2021)	Calcutta University	28 November, 2021 18-19 September, 2021
<b>Prof. K.K. Chattopadhyay</b>	Invited Lecture	AMMRUT MAHOTSAVA – INDIA @75	National Test House, Kolkata	11-12 August, 2021
<b>Prof. K.K. Chattopadhyay</b>	Invited Lecture	Invited Lecture on Induction Programme	Govt. college Government College of Engineering and Ceramic Technology, Kolkata	30 September, 2021
<b>Prof. K.K. Chattopadhyay</b>	Invited Lecture	Physics Colloquium	Presidency University	23 December, 2020
<b>Prof. K.K. Chattopadhyay</b>	Invited Lecture	E Workshop on Spectroscopy	National Physical Laboratory (NPL)	3 December, 2020
<b>Prof. K.K. Chattopadhyay</b>	Jury for best paper presentation	E Workshop on Spectroscopy	National Physical Laboratory (NPL)	4 December, 2020
<b>Prof. K.K. Chattopadhyay</b>	Keynote Address	International Conference on Advances on Nanooptoelectronics and its applications 2020 (ICANOPA 2020),	Rajib Gandhi University	12-14 October, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Sourav Sarkar</b>	AICTE sponsored Online QIP-Short term course	Department of Ceramic Engineering, Indian Institute of Technology (IIT), Varanasi	22-26 February, 2021



## Annual Report 2020-2021

### MEDIA COMMUNICATION & CULTURE

Phone : 033-2457-2351

033-2414-6352

Director : Prof. Abhijit Roy

E-mail: [dir.media@jadavpuruniversity.in](mailto:dir.media@jadavpuruniversity.in)

[abhijit.roy@jadavpuruniversity.in](mailto:abhijit.roy@jadavpuruniversity.in)

#### 1. Vision and Mission of the School:

##### A. Vision:

The School of Media, Communication and Culture (SMCC), Jadavpur University, is a centre for advanced interdisciplinary research on the social construction, dissemination and reception of media with special reference to the Indian context. There are not many institutions in India where media research, teaching and creative practices can be conducted from a perspective that combine cultural theory and critical activism. The major vision of the School is to fill up this lacuna. We wish to be a space for dialogue for creating critical awareness about media and its relationship with society at large. This space will be interdisciplinary in nature, engaging with issues in history, politics, society and culture, literature and languages, print and audiovisual media, digital cultures, etc. and disciplines like media studies, cultural studies, gender studies, new media studies etc. Our vision is also driven by the philosophy of 'communication for change' where we wish to bring about meaningful change to lives of people and communities through the intervention of alternative media. Along with research and alternative media activism, we wish to strengthen our commitment to quality training of young minds into the craft of media production. So, as a whole, we visualize a just society, sensitive to rights of all sections of society, where the School will play a significant role through research, teaching and creative practice in the field of media.

##### B. Mission:

The School aspires to achieve its vision through research, academic teaching, professional training and creative media practices, guided by the philosophy of 'communication for change'. Projects have always been undertaken with a view to meaningfully intervene into actual practices and not merely to generate resources for classroom lectures. From audiovisual documentation of the city of Calcutta to research on Madrasa education, from workshops on NCERT curriculum framework to managing 90.8 Community Radio JU, from offering the only 'Radio Production' course in eastern India to engaging under-privileged children with issues in child rights, from devising a one-of-its-kind Ph.D Coursework on 'Media, Communication and Culture' to undertaking projects on 'digital interventions', the range of activities of the School testifies to this commitment. The kind of research and training SMCC promotes locates itself at the crossroads of documentation, theorization and practice. In these context, one can particularly mention the School's projects under the University with Potential for Excellence (UPE) scheme of the UGC (2014-19): 'Palagaan' (on rural dramatic traditions in Bengal), 'Dance and Performance', 'Interface' (on how the industrial belt in Jharkhand has affected the ethnic cultural heritage of the place), 'Multimedia Stories on Under-Reported Issues' (on the book-binding workers of Calcutta), 'Soundscapes of Kolkata'. The knowledge gained from the projects are always tried to be shared with society at large through regular seminars, invited talks and colloquia. The spirit of sharing has been reflected in many other courses including the 2016 course on 'Contemporary Cultural Studies' for young scholars under the MHRD scheme of 'Global Initiative of Academic Networks' (GIAN) and the 2020 UGC-sponsored course on 'MOOCs, E-Content Development and Open Educational Resources'.

#### 2. Academic Activities:

##### A. Programmes offered

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
Ph.D		Academic Year	No. of students

## Annual Report 2020-2021

	Includes coursework of 6 months	2020-2021	Ph.D Coursework started on 4 January, 2021
UGC-approved Certificate Course on 'Radio Production'	6 months	2020-21	None. In-person classes were not possible due to Covid protocols. This course, based on intense technical and practical exercises, cannot be conducted online.

**Director: Professor Abhijit Roy**, Department of Film Studies

**Joint Director: Professor Sayantan Dasgupta**, Department of Comparative Literature

No permanent faculty member; The courses offered by the School are taught by 4-6 teachers from Jadavpur University and 9-12 from outside the University.

#### 4. Research Activities:

##### A. Areas of Research Activities (Broad Areas):

- Media Studies, Communication Studies, Cultural Studies
- Digital Cultures
- News Television
- Indian Television, Television Studies
- Performance Studies
- Translation and Cultures
- Radio Studies
- Media and Convergence
- Urban Studies
- Children, Youth and Media
- Community Radio, Alternative Media Practices

##### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
'Youth Community Reporters'. Please see 'workshops organised' and 'special achievements' for project activities.	Departmental	Professor Nilanjana Gupta, Member of the Academic Committee of the School and Professor of English	UNICEF	February 2020 to December 2020
University Webinar Series on 'Children and Young Adults during COVID 19: Issues and Challenges'. A series of 5 webinars in collaboration with 5 universities in West Bengal. The series was inaugurated by Professor Suranjan Das, the Hon'ble Vice-Chancellor of JU. Please see 'workshops organised' for project activities.	Departmental	Professor Abhijit Roy, Director of the School and Professor of Film Studies	UNICEF	September 2020 to November 2020

## Annual Report 2020-2021

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

1. Sayantan Dasgupta, "Manto Reloaded, Hussein Remixed: Exploring Intermedial Translation in South Asia" in *Jadavpur Journal of Comparative Literature* 56. Kolkata: Jadavpur University, 2020.
2. Sayantan Dasgupta, "Celebrating Nabaneeta Dev Sen: Of Teleportation and Time Travel" in A J Thomas ed., *Indian Literature* 316. New Delhi: Sahitya Akademi. March-April 2020.
3. Sayantan Dasgupta, "Chandrabati's *Ramayana*" in A J Thomas ed., *Indian Literature* 320. New Delhi: Sahitya Akademi, November-December 2020.
4. Sayantan Dasgupta, "Bringing Home Magic Realism: Manabendra Bandyopadhyay" in A Dev Sen ed., *Indian Literature* 321. New Delhi: Sahitya Akademi, January-February 2021.
5. Sayantan Dasgupta, "Careful Custodian of Culture: Swapan Majumdar" in A Dev Sen ed., *Indian Literature* 321. New Delhi: Sahitya Akademi, January-February 2021.
6. Sayantan Dasgupta, "The Modern Indian Short Story" (Manabendra Bandyopadhyay). Tr. in A Dev Sen ed., *Indian Literature* 321. New Delhi: Sahitya Akademi, January-February 2021.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year.

1. Sayantan Dasgupta, "Tale of a Brahmin and a Shudrani" (Kalyani Thakur). Tr. in Panchali Ray ed., *Women Speak Nation*. London and New York: Routledge, 2020.
2. Sayantan Dasgupta, "Translating *Chandrika* in its Centenary Year" in Kabita Lama ed., *Chandrika: Shatabarshiki Visheshank*. Darjeeling: Gorkha Jan Pustakalaya. December 2020.

### G. Research Collaboration with other Departments/Institutes/Industries:

The two collaborative projects with UNICEF have been mentioned under B (Major Research Projects) above. They are not mentioned here since there is no individual "collaborator" from the collaborating organization. Please see 5C below for collaborative events organised:

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### C. Seminar/Workshop/Conference/Symposium Organized:

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/ equivalent	Title of the Proceedings, if published	Place	Date
'Child Protection Risks during Pandemic and Coping Skills', seminar organised in collaboration with UNICEF	Abhijit Roy	Speakers: Ruchira Goswami, Assistant Professor, National University of Juridical Sciences and Dr. Jhuma Basak, Psychologist and Psychoanalyst. Moderator: Professor Nilanjana Gupta, Jadavpur University.	Online	17 September, 2020
'Child Abuse and Neglect During Pandemic and Coping Skills', seminar	Abhijit Roy	'Covid 19: Children at Heightened Risk of Abuse, Neglect,	Online	19 October, 2020

### Annual Report 2020-2021

<p>organised in collaboration with UNICEF and Department of Mass Communication, University of Burdwan.</p>		<p>Exploitation and Violence amidst Intensifying Containment Measures' by Gargi Banerjee, Child Protection Expert</p> <p>'Impact of Abuse and Maltreatment on Mental Health and Role of Students /Youths in Rendering Support' by Dr. Rima Mukherji, Founder- Director, <i>Crystal Minds</i> and Consultant Psychiatrist. Moderator: Dr. Rajesh Das, Dept. of Mass Communication, University of Burdwan</p>		
<p>'Child Marriage during Pandemic and Coping Skills', seminar organised in collaboration with UNICEF and Department of Social Work, Visva-Bharati, Santiniketan</p>	<p>Abhijit Roy</p>	<p>Speakers:            Prof. Manohar Pawar, Professor of Social Work, Charles Sturt University, Australia and President, International Consortium for Social Development.            Prof. Prasanta Kumar Ghosh, Dept. of Social Work, Visva-Bharati.            Mr. Nirupam Sinha, District Child Protection Officer, Birbhum.            Dr. Rimjhim Roy, Consultant Psychologis.            Moderator:            Prof. Ashok Kumar Sarkar, Head, Dept. of Social Work, Visva-Bharati</p>	<p>Online</p>	<p>21 October, 2020</p>

### Annual Report 2020-2021

<p>‘COVID 19 and Human Trafficking: Amplified Impact on Vulnerable Children and Adolescents’, seminar organised in collaboration with UNICEF and Centre for Child Rights, Department of Law, University of North Bengal</p>	<p>Abhijit Roy</p>	<p>Speakers: Gargi Banerjee, Child Protection Expert. Dr. Suvarna Sen, consultant psychologist. Moderator : Dr. Sujit Kumar Biswas, Department of Law, University of North Bengal</p>	<p>Online</p>	<p>17 November, 2020</p>
<p>‘Ramifications of COVID 19 on the Marginalised Children and the Way Forward’, seminar organised in collaboration with UNICEF and St. Xavier’s University, Kolkata</p>	<p>Abhijit Roy</p>	<p>Speakers: Enakshi Ganguly, child rights activist. Dr. Anuttoma Banerjee, consultant psychologist.</p>	<p>Online</p>	<p>21 November, 2020</p>
<p>‘Sexual Harassment in the Performing Arts’, a constructive conversation around how we can address issues relating to sexual harassment in the performing arts through positive and proactive organisational action and how we can break the culture of silence without fear of consequences. Collaborators: Natyanova Performing Arts Centre, Kolkata, Artsforward, Kolkata and Kri Foundation, New Delhi.</p>	<p>Abhijit Roy</p>	<p>Speakers: 1. Arshiya Sethi, Dance Scholar, Activist and Founder &amp; Managing Trustee, Kri Foundation. 2. Asiya Shervani, diversity, inclusion and interpersonal ethics advisor. 3. Somabha Bandopadhyaya, classical dancer and legal scholar. 4. Swarnamalya Ganesh, Assistant Professor, Krea University. 5. Ranjana Dave, independent dance practitioner, writer and Programmes Director at Gati Dance Forum. 6. Priyadarshini Ghosh. Dancer, choreographer, dance scholar, Co-director, Natyanova. 7. Sanjukta Wagh, Kathak and dance theatre practitioner, educator, Cofounder, Beej.</p>	<p>Offbeat CCU, 36/F Topsia Road, Kolkata- 700039 and online (blended mode)</p>	<p>12 February, 2021</p>

### Annual Report 2020-2021

		8. Titas Dutta, theatre practitioner, art manager, founder member, Samuho. 9. Paramita Saha, performer, curator, Co-Director of Artsforward and Sapphire Creations Dance Company.		
‘Beyond the Headphones: Contemporary Film Sound Research’	Abhijit Roy	An online presentation by Dr. Budhaditya Chattopadhyay, media artist and scholar. The talk introduced Chattopadhyay’s two books: <i>The Auditory Setting</i> (Edinburgh University Press, 2021) and <i>Between the Headphones</i> (Cambridge Scholars Publishing, 2021)	Online	9 March, 2021
A series of 4 workshops under the ‘Youth Community Reporters’ project of the School in collaboration with UNICEF.	Nilanjana Gupta	‘Trafficking of Women and Children’. Resource person: Souvik Basu, Programme Coordinator at Sanlaap. A different set of 10 children from marginalised sections of society participated in each workshop.	Online	27August, 03, 09 and 15 September, 2020
A series of 4 workshops under the ‘Youth Community Reporters’ project of the School in collaboration with UNICEF.	Nilanjana Gupta	‘Adolescent Mental Health during the Covid 19 Pandemic’. Resource person: Dr. Jhuma Basak, Psychologist and Psychoanalyst. A different set of 10 children from marginalised sections of society participated in each workshop.	Online	22September 01 October, 25 and 30 November, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Sayantana Dasgupta	Invited lectures (2) on “Academic Social Responsibility and Pedagogy in the	Faculty Induction Programme (Jadavpur University)	Kolkata	22 February, 2021

**Annual Report 2020-2021**

	Humanities: Towards Interdisciplinarity” and “Academic Social Responsibility and the Translation and Teaching of Indigenous and Marginalised Literatures”			
<b>Sayantana Dasgupta</b>	Invited Lecture on “Manto Reloaded, Husain Remixed: Exploring Intermedial Translation in South Asia”	Refresher Course of the Department of English on “Protean Wor(l)ds: Literary and Cultural Metamorphosis”	Kolkata	02 March, 2021
<b>Sayantana Dasgupta</b>	Invited Lectures on “Exploring Intermedial Translation in South Asia” (2)	Faculty Induction Programme (Jadavpur University)	Kolkata	16 March, 2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “Contextualising Comparative Literature”	Refresher Course Organised by The Department Of English, Aligarh Muslim University	Aligarh	16 January, 2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “Contextualising Comparative Literature: The Indian Scenario”	Refresher Course on “Comparative Literary Studies: Indian Dimension” organized by Department of Comparative Indian Language and Literature, University of Calcutta	Kolkata	04 March, 2021
<b>Sayantana Dasgupta</b>	Invited Lectures(2) on “In Black and White and Colour: Tintin Travels to the Congo” and “Academic Social Responsibility and Pedagogy in the Humanities: Towards Interdisciplinarity”	Faculty Induction Programme (Jadavpur University)	Kolkata	01 March, 2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “India in Translation; Translation in India”	Faculty Induction Programme (Jadavpur University)	Kolkata	12 March, 2021

**Annual Report 2020-2021**

<b>Sayantana Dasgupta</b>	Invited Lecture on “Literary Studies in India: The Curious Case of Comparative Literature”	Refresher Course on ‘Literary Studies and the Question of Interdisciplinarity’ Organised by the Department of Comparative Literature	Kolkata	January, 2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “The Curious Case of Indian Literature”	Exchange Programme Orientation Techno International New Town	Kolkata	17 February, 2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “Englishing India: Turn-of-the-Century Translation Practices”	British Centre for Literary Translation, University of East Anglia, Seminar Talk	Norwich	09 December, 2021
<b>Sayantana Dasgupta</b>	Chaired a session on <i>Tarjama</i>	International Conference of the Comparative Literature Association of India on “Persian-Arabic Poetics in the Context of Indian Poetics: Readings, Recoveries and Re-orientations in South Asian Literatures” organized in collaboration with the Bhagat Phool Singh Mahila Vishwavidyalaya and the National Council for Promotion of Urdu Language (NCPUL)	Sonepat	16 March, 2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “Travels with Tintin”	Department of English, Shibpur Dinobundhoo Institution (College)	Kolkata	08 August, 2020
<b>Sayantana Dasgupta</b>	Participated in a Panel Discussion on the “Role of Translation in a Multilingual Society”	“Knitting India through Translation” series of the Sahitya Akademi	<a href="https://www.youtube.com/watch?v=681-JgoPw3I">https://www.youtube.com/watch?v=681-JgoPw3I</a>	26 May, 2020
<b>Abhijit Roy</b>	Invited lecture on ‘Media Research: Cultural Theory Perspectives’	PhD Coursework lecture series	Department of Mass Communication, St. Xavier’s University, Kolkata (online)	15 May, 2020



### Annual Report 2020-2021

<b>Abhijit Roy</b>	Invited lecture on 'Film Time, Spectatorship and Adaptation'	Virtual Lecture Series, 20-26 May, 2020	Dept of English Language and Literature, Adamas University, Kolkata (online)	21 May, 2020
<b>Abhijit Roy</b>	Invited lecture on 'Television News and Democracy'	Second Webinar Series, 6-12 May, 2020	Institute of Media Studies, Utkal University, Bhubaneswar (online)	9 May, 2020
<b>Abhijit Roy</b>	Invited presentation on 'News, Documentary and Television'	International online colloquium on the curriculum of the proposed BA in Media Studies at Ton Duc Thang University, Vietnam	Ho Chi Minh City, Vietnam (online)	25 September, 2020
<b>Abhijit Roy</b>	Invited lecture on 'Visualising Literature: Time, Space, Narration'	Refresher Course on 'Literary Studies and the Question of Interdisciplinarity', 7-21 January, 2021	Department of Comparative Literature, Jadavpur University (online)	19 January, 2021
<b>Abhijit Roy</b>	Chaired a session	Chaired the lecture titled 'Reading/ Translating Capital Yet Again', by Prof. John Hutnyk, Ton DucThang University, Vietnam	'Historical Materialist', an organisation based in Jadavpur University (online)	28 January, 2021
<b>Abhijit Roy</b>	Invited lecture on 'Film Studies and Higher Education in India'	UGC-HRDC Faculty Induction Programme, 28 January to 24 February, 2021	Guru Nanak Dev University, Amritsar (online)	10 February, 2021
<b>Abhijit Roy</b>	Invited lecture on 'Media and the Culture of Makeover'	UGC-HRDC Refresher Course on 'Protean Wor(l)ds: Literary and Cultural Metamorphosis'	Department of English, Jadavpur University (online)	2 March, 2021

**6. Major Achievements of the School during the year:**

A total of 30 videos of 4-7 minutes each were produced by the UNICEF-funded 'Youth Community Reporters' project of the School:

June 2020: 4 videos

July 2020: 4 videos

August 2020: 5 videos

September 2020: 4 videos

## Annual Report 2020-2021

October 2020: 4 videos  
November 2020: 5 videos  
December 2020: 4 videos

### Some of the key themes of the videos were:

1. Menstrual hygiene
2. Food Safety
3. Fake news
4. Mental Health
5. Environment Day
6. Suicide Prevention Day
7. Awareness Video on Trafficking
8. International Girl Child Day
9. Global Hand Washing Day
10. Toilet Day
11. Awareness Video on Violence against Women
12. UNICEF's Birthday
13. National Farmer's Day
14. Say No to Crackers
15. White Kane Safety Day

The videos can be watched on the Youtube channel of the 'Youth Community Reporters' project:  
<https://www.youtube.com/channel/UCqunqZ4ZJw-jo7CWaBu5z0w/videos>

### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Sayantana Dasgupta	Nominated member, English Advisory Board, Sahitya Akademi	Sahitya Akademi	New Delhi

### B. Any other Honour received by the Faculty Members:

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
Abhijit Roy	Membership of the editorial board of Studies in South Asian Film & Media (ISSN 17564921), a double-blind peer-reviewed journal published by Intellect.	Intellect Books	Headquartered in United Kingdom. Notified Through email from the editors, 4 September, 2020
Sayantana Dasgupta	Nominated Editor of Jadavpur Journal of Comparative Literature	Department of Comparative Literature, Jadavpur University	Kolkata

### 7. Extension Activities of the School during the year:

#### A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.

##### Abhijit Roy

Collaborated with Dr. Taberez A. Neyazi, Assistant Professor, Department of Communications and New Media, National University of Singapore, in the research project titled 'Digital Political

## Annual Report 2020-2021

Campaign' (December 2020 to April 2021) with particular reference to 2021 West Bengal Legislative Assembly Elections.

### B. Activities for the Society:

#### Abhijit Roy

1. Presentation at the online panel discussion on 'Lockdown, the State and Us' organised by EbongAlap, a Non Governmental Organisation, 16 April 2020.
2. Moderated an online panel discussion on 'Those who stood by migrant workers and others during the lockdown' organised by EbongAlap, a Non Governmental Organisation, 23 April 2020.
3. Presentation at the online panel discussion on the death of Fr. Stan Swamy, organised by Nari Nigraha Birodhi Nagarik Committee, 11 October, 2020.

### 8. Students Progression during the year:

The School does not offer any degree course. It offers a six-month certificate course on 'Radio Production'. Admission to this course was closed for 2020-21 since in-person classes were not possible during the pandemic. This course, based largely on practical exercises, hands-on training and technological skill development, could not be conducted online.

## MOBILE COMPUTING AND COMMUNICATION

Phone: 033-2430-6224

Director: Dr. Punyasha Chatterjee

E-mail: [dir.mobilecomputing@jadavpuruniversity.in](mailto:dir.mobilecomputing@jadavpuruniversity.in)

### 1. Vision and Mission of the School :

#### A. Vision:

To promote interdisciplinary study and research in wireless communication and Mobile Computing recognising the contemporary trends in the state of the art technologies, thus developing applications for societal benefit.

#### B. Mission:

- i. To provide excellent technical education to the students and scholars associated with the school and thus help them to take the right path to a successful career.
- ii. To pursue research in diverse fields of application of Mobile and Wearable devices /systems in socially relevant programs, such as spread of education, providing health care, agricultural support system, etc.
- iii. To offer courses and research programs on emerging technologies in mobile computing and communication utilizing the developed infrastructure.
- iv. To foster the growth of collaborative R&D with industry and other institutes – both national and international – in the field of mobile computing and communication.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)
-----------------------	------------------	---

## Annual Report 2020-2021

		Year	No. of Students
M. Tech in Distributed & Mobile Computing	02	1 <sup>st</sup> year	15
		2 <sup>nd</sup> year	19

### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
xx	01 (Permanent)	02 (01 – Permanent, 01 - Contractual)	02

### 4. Research Activities:

- A. Areas of Research Activities (Broad Areas) :** Wireless Localization & Tracking, Machine Learning, Smart Transportation, Distributed and Parallel Computing, Wireless Sensor Networks, Social Network Analysis, Wireless and Mobile Computing, Computation Offloading, Smart Health Care, High Performance Computing, Internet of Things, Big Data and Cloud Computing, Pervasive Computing, Distributed Algorithms, Big Data Storage and Management.

### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Participatory and Real Time Pollution Monitoring system for Smart City	Individual	Principal Investigator: Dr. Sarbani Roy Co-PI: Dr. Chandreyee Chowdhury	Higher Education, Science & Technology and Biotechnology, Department of Science & Technology, Government of West Bengal	3 years w.e.f. July 2018

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

- P. Sadhukhan, S. Gain, K. Dahal, S. Chattopadhyay, N. Garain, X. Wang, "An efficient clustering with robust outlier mitigation for Wi-Fi fingerprint based indoor positioning," Applied Soft Computing, Volume 109, September 2021, 107549, ISSN 1568-4946.
- A. Chanda, P. Sadhukhan, and N. Mukherjee, "Key Management for Hierarchical Wireless Sensor Networks: A Robust Scheme" EAI Endorsed Transactions on Internet of Things 6, no. 23, 2020.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

- Mitra Tithi Dey, **Punyasha Chatterjee**, Challenges and Opportunities of Smart Solid Waste Management: A Review, Horizons in Computer Science Research, Volume 20, Thomas S. Clary (Editor), pp 61-109, Nova Science Publishers, New York USA, ISBN: 978-1-53619-103-5, February 10, 2021
- Dey M.T., **Chatterjee P.**, Chakrabarti A. (2021) Smart Waste Monitoring Using Internet of Things. In: Sharma N., Chakrabarti A., Balas V., Martinovic J. (eds) Data Management, Analytics and Innovation. Advances in Intelligent Systems and Computing, vol 1174. pp. 419-433 Springer, 656

## Annual Report 2020-2021

Singapore. [https://doi.org/10.1007/978-981-15-5616-6\\_30](https://doi.org/10.1007/978-981-15-5616-6_30), Print ISBN 978-981-15-5615-9, First Online 19 August 2020

3. Mamud S., **Chatterjee Punyasha**, Bandyopadhyay S., Bhandari S., Automated Dietary Monitoring System: A Novel Framework, *ICT Systems and Sustainability. Advances in Intelligent Systems and Computing*, vol 1270, Tuba M., Akashe S., Joshi A. (eds), pp 535-542, Springer Singapore, Print ISBN 978-981-15-8288-2, 15 December 2020
4. P. Roy, **C. Chowdhury** (2021) A Survey of Machine Learning Techniques for Indoor Localization and Navigation Systems, *Journal of Intelligent & Robotic Systems*, 101(63), <https://doi.org/10.1007/>.
5. P. Roy, **C. Chowdhury** (2021) Designing an ensemble of classifiers for smartphone-based indoor localization irrespective of device configuration, *Multimedia Tools and Applications*, <https://doi.org/10.1007/>, vol 80, pp. 20501–20525.
6. P. Roy, **C. Chowdhury**, M. Kundu, D. Ghosh, S. Bandyopadhyay (2020) Novel Weighted Ensemble classifier for Smartphone based Indoor Localization, *Expert Systems with Applications*, Elsevier, vol. 164, pages113758, ISSN 0957-4174, <https://doi.org/10.1016/j.>
7. P. Sadhukhan, S. Banerjee and P. K. Das, “Road Traffic Congestion Monitoring in Urban Areas: A Review,” In: R. Maheswar et al (eds) *Challenges and Solutions for Sustainable Smart City Development. EAI/Springer Innovations in Communication and Computing*. Springer, Cham., ISBN: 978-3-030-70182-6, pp 199-211.
8. Sadhukhan P., Mukherjee N., Das P.K. (2021) Location-Based Services for Smart Living in Urban Areas. In: Paiva S. (eds) *Precision Positioning with Commercial Smartphones in Urban Environments*. EAI/Springer Innovations in Communication and Computing. Springer, Cham., pp. 53-69.
9. Mandal A., Sadhukhan P., Gaji F., Sharma P. (2020) Measuring Real-Time Road Traffic Queue Length: A Reliable Approach Using Ultrasonic Sensor. In: Kundu S., Acharya U., De C., Mukherjee S. (eds) *Proceedings of the 2nd International Conference on Communication, Devices and Computing*. Lecture Notes in Electrical Engineering, vol 602. Springer, Singapore, pp. 391-398.
10. P. Sadhukhan, A. Talukder, “Automated Real-time Parking Management for Smart Cities,” S. Kundu et al. (eds.), *Proceedings of the 2nd International Conference on Communication, Devices and Computing*, Lecture Notes in Electrical Engineering 602, ISBN: 978-981-15-0828-8, Springer Singapore Pte Ltd 2020, pp. 655-667.

### F. Research Articles Published in Conference Proceedings during the year:

**(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No., Year)**

1. P. Majumder, P. Chatterjee and K. Sinha, "Run Length Distribution based Block Coding Scheme for Sustainable IoT Applications," 2020 2nd PhD Colloquium on Ethically Driven Innovation and Technology for Society (PhD EDITS), 2020, pp. 1-2, doi: 10.1109/PhDEDITS51180.2020.9315302, Date Added to IEEE Xplore: 11 January 2021, Print on Demand(PoD) ISBN:978-1-7281-9609-1, Publisher: IEEE

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### C. Seminar/Workshop/Conference/Symposium Organized:

**(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)**

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Future generation Computing and applications: Smart Devices	Ms. Arpita Sarkar		Webinar	19 September., 2020, 2:45 pm onwards

## Annual Report 2020-2021

Future generation Computing and applications: Cloud Computing	Ms. Arpita Sarkar		Webinar	26 September., 2020, 2:45 pm onwards
The Fourth International Workshop on Networking Women In Distributed Computing And Networks (NWDCN 2021) in conjunction with ICDCN 2021	Organising Chair: Dr Punyasha Chatterjee	ICDCN '21: Adjunct Proceedings of the 2021 International Conference on Distributed Computing and Networking by ACM	Nara, Japan	5 January, 2021

### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Ms. Arpita Sarkar</b>	Speaker	Web-based Exposition on Engineering and Technology Research at Jadavpur University (WEBINAR-FET-JU R&D Expo 2021)	Webinar	26-27 February, 2021
<b>Dr Punyasha Chatterjee</b>	Speaker	Webinar on “IoT and its Applications”	Guru Nanak Institute of Engineering, Kolkata	7 July, 2020

### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
<b>Ms. Arpita Sarkar</b>	Internet of Things: Healthcare Application and Cyber Security Challenges.	Webinar organized by Dept.of Comp.Science & Engg & Dept of IT, MAKAUT, WB.	16 July, 2020, 6 pm onwards
<b>Ms. Arpita Sarkar</b>	Future Generation Computing and Applications	Government College of Engineering and Ceramic Technology, Kolkata	8 and 9 August, 2020
<b>Dr Punyasha Chatterjee</b>	One Week Multi-Disciplinary Faculty Development program on “Product Development & Industrial Research 2020”	Government College of Engineering, Aurangabad	6 and 10 July, 2020

### 6. Major Achievements of the Department/School/Centre during the year:

#### B. Any other Honours received by the Faculty Members:

## Annual Report 2020-2021

Name of the Faculty Member	Name of the Award/ Honour	Awarding Institute	Place
Dr. Punyasha Chatterjee	Best Paper Award	4th International Conference on Data Management, Analytics & Innovation (ICDMI 2020)	Delhi, India
Dr. Punyasha Chatterjee	Copyright for the work entitled "COGNITIVE EVALUATION OF EXAMINEES BY DYNAMIC OUTCOME BASED QUESTION PAPER GENERATION FOLLOWING BLOOM'S TAXONOMY" Dt 9th Nov 2020	Govt. of India	India

### NATURAL PRODUCT STUDIES

Phone: 033-2414-6046

033-2457-2036

Director: Dr. Pallab Kanti Halder

Email: naturalproductm@gmail.com

#### 1. Vision and Mission of the School :

##### A. Vision:

The main objective of the school is to explore natural products in every respect. The work is based upon the combined approaches of both exploitation and exploration which can be utilized in future to pursue a new line of investigation. The main stay of investigation being in the domain of natural product research so much so herbal medicine and allied approaches relating to their quality, safety, efficacy and scientifically validated natural product development.

##### B. Mission:

The main Goal of the School of Natural Product Studies, Jadavpur University is to empower the individuals with skills, spirit and experience required for the capable green herbalist so much so the natural product scientists. This will not only explore the wide biodiversity of India for the lead finding in natural products but also will develop a center for its excellence for the evaluation of natural products with proper validation in every respect of drug development through natural products.

The school will be dedicated to promoting the knowledge, use and delight of natural products so much herbs through educational program, research and sharing the experiences of scientific validation of herbals for the betterment of the healthcare of the society. One of the great myths about natural medicines is that they are not scientific. The fact of the matter is that for most common illness, there is greater support in the medical literature for a natural approach than there is for drugs or surgery. Unfortunately, many people are not aware of the natural approach that can put them on the road to lifelong health. The school of natural product studies will move forward for the betterment of the quality, safety, efficacy and validation of natural products under the prestigious Jadavpur University. Its wider offerings include the field of:

## Annual Report 2020-2021

- a) Screening of natural products
- b) Evaluation of natural products
- c) Value addition to natural products through value added herbal drug delivery systems
- d) Quality control and standardization of natural products formulation
- e) High throughput screening for the lead finding in natural products.
- f) Scientific validation of the systems including Ayurveda, Siddha, Unani and Homeopathy
- g) Phytochemical and phytopharmacological studies for lead finding in natural products from the great ancient treatise of India.
- h) Herbal therapeutics, pharmacokinetics and utilization of herbal drugs
- i) Herbal Sciences and Nutrition
- j) Safety evaluation of natural products through Cytochrome Inhibition study.

The school will continue to be a focal point and meeting ground for some of the finest hearts and minds in modern herbalism, offering a multi-perspective approach to Earth-centered botanical studies. Main focus is to understand, honor and conserve the biodiversity and to explore it for lead finding from plants with proper evidences in every respect. A course on Post graduate in Natural product studies will be made through the school beside its pioneering research works of every aspect of natural products development.

The center is performing extensive work in screening and evaluation of natural products particularly drug development from the huge biodiversity of India, more particularly of the eastern and northeastern part of India, which have enormous natural resources that can be exploited for the lead finding from natural products for the treatment of severe ailments. The center is working in the field of pharmacognostical and phytochemical screening of medicinal plants and to develop standard for the same to be used as drug. In this context the center has collaborated with many National and International agencies, institutions and pharmaceutical industries, which enables to share knowledge and experiences in the field of research as well as regulatory perspectives related to botanicals.

**The main features of the school are summarized below:**

**1) Screening the biodiversity for the lead finding from natural Products:**

The interest of Pharmaceutical industries to screen natural product extracts for new biologically active compounds is increasing due to the high through-put screening methods. For this our huge biodiversity can be explored effectively to find out lead consisting of a large number of chemical structures with potent therapeutic activity for the treatment of deadly ailments. Through high throughput screening by enzyme inhibitory assays and other effective techniques and also by the use of sophisticated instruments like Centrifugal Partition Chromatography (CPC), counter current liquid-liquid partitioning chromatography, High Performance Liquid Chromatography (HPLC), Liquid chromatography coupled with mass spectroscopy (LCMS). Gas chromatography coupled with mass spectroscopy (GCMS) and Nuclear Magnetic Resonance spectroscopy (NMR). A number of compounds has been isolated and identified for their specific characteristics which will not only help to screen the compounds but also proper validation of the formulations of all traditional medicine can be made more effectively. These will definitely lead to a new way of investigation for the entire biodiversity more particularly the eastern and north eastern part of India for the screening of the herbal drugs and other natural products to a greater extent for the benefit of the common people to fulfill their healthcare need from the biodiversity.

**2) Quality control of Natural products:**

Considering the huge resources of herbal medicine in India, development of test procedures for assessing the identity, purity and content of medicinal plant materials are utmost essential. Potential therapeutic components can be developed easily by these resources but due to the lack of proper guidelines the quality concepts of herbal drugs has not developed up to that extent. For the development the quality and standardization parameters of herbal drugs and thereby to assist the herbal drugs manufacturers engaged in production, the manual responds to the growing use of medicinal



## Annual Report 2020-2021

plants and the corresponding needs for international guidance on reliable methods of quality control and development of standardization parameters is of great importance. Based on this concept the objective of the school is to:

Evaluate the Phytochemical/ Phytopharmacological/ Microbiological/ Antiviral and allied properties of different herbal drugs relating to their development, quality control and standardization parameters. Develop the quality parameters of some herbal drugs which having potential therapeutic effects with the use of respective bio-markers and respective fingerprinting behavior.

Evaluate the quality and standardization parameters of herbal drugs used in Ayurveda, Siddha, Homeopathy and other alternative systems of medicine through the formulation of in-house standard. Compilation of the legal status and allied approaches of herbal drugs of the developed countries and to develop their quality parameters.

### 3) Pharmacovigilance and safety assessment of natural products:

The main aim of the school in this aspect will be the institution of a systematic effort to collect, evaluate and disseminate data about adverse drug reactions and to prepare and disseminate clinical pharmacy materials that improve the awareness of the public towards herbal drugs resulting in improvement in the quality of use. Toxicity assessment of the prevalent formulations and also of the traditional dosage forms will be made for the acute, sub-acute and chronic toxicity study, so that the clinical efficacy of the drugs can be reestablish in a better way for the development of natural products through different systems of Indian medicine including Ayurveda, Siddha, Unani and Homeopathy. Work on this aspect can be highlighted with the Plan of work as follows:

- A) Survey on the natural product so much so herbal drug formulations available in India
- B) Identification of several centers practicing natural product viz. herbal therapy and establishing collaboration for Adverse Drug Reaction (ADR) Monitoring.
- C) Establishment of ADR monitoring facilities at the selected centers and surveillance of ADRs
- D) Baseline study on the awareness of the consumers of herbal drugs at the study centers and ADR monitoring
- E) Preparation and distribution and education on clinical pharmacy materials for the natural products formulations and related.
- F) Analysis of data on ADRs for various formulations taking a few leads at the beginning to start with. The findings will help in further development of ADR Monitoring of different herbal formulations / traditional medicines being used in various centers practicing Alternative Systems of Medicine.

### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
2	-	-	2

### 4. Research Activities:

#### A. Areas of Research Activities :

School of Natural Product Studies (SNPS, J.U) has been working on evidence based scientific studies for evaluation of the medicinal plants used in the traditional practices medicine based drug discovery programme so as to make them available from 'Farm to Pharma'. The major area of research highlights on leveraging innovations in botanical research, particularly on rationally designed, carefully standardized, synergistic traditional formulations and botanical drugs for their scientific validation on several evidence based approaches. MoU has been signed for collaborative research program with several institutions and industries.

SNPS, J.U has made significant contributions on metabolomic studies of medicinal and aromatic plants (MAPs) for chemo-profiling, marker analysis, quality control, safety surveillance and related aspects, which are useful bio-prospecting tools to make them available from 'Farm to Pharma'. The works on metabolite profiling for validation of MAPs for Alzheimer's diseases, anti-allergy, anti-infective,

## Annual Report 2020-2021

metabolic and lifestyle related disorder are very important and have a worldwide impact for the adoption of the therapeutic approaches available in MAPs. It has established the safety profile of MAPs and developed value added products through CYP450 mediated interaction study. Our work highlights on several parameters for quality evaluation and validation of MAPs along with development of high-throughput screening methodologies for drug screening and evaluation. SNPS, J.U works on systematic data mining of the existing formulations and single herbs can certainly help the drug discovery from MAPs. SNPS, J.U has more than 220 publications, several patents, 7 books, 20 book chapters. SNPS, J.U has research publications with cumulative Impact Factor >267; h-Index- 64, i10-index - 344; citation over 21400 times. SNPS, J.U has been appreciated by several industries and various products have been developed; technology transferred through University-Industry collaborations and the products / the process developed are being marketed.

SNPS, J.U has been engaged with the development of international collaboration and coordination in the field of medicinal plant research and has organized several international and national conferences, workshops, seminars at Jadavpur University and other states of India as well to disseminate knowledge for promotion and development of MAPs

### **Major contributions of SNPS, J.U on Traditional medicine inspired drug development from MAPs are as follows:**

- ***Metabolomics, Quality control and standardization of herbal drugs:***

SNPS, J.U has contributed a lot for the development of marker profiles of herbs related to analytical, bio-analytical techniques for MAPs with therapeutic importance. These works have been reported through books on “Quality Control and evaluation of Herbal Drug” [ISBN 978-0-12-813374-3], edited volume “GMP for botanicals” [ISBN 81-900788-5-2] and edited volume “Evidence based validation of herbal medicine” [ISBN978-0-12-800874-4] which has received worldwide impact. The school has been working till then in this field for development of quality control profile of herbal medicine through HPTLC, HPLC, LC-MS/MS, GC/MS and different other analytical and bio-analytical techniques. SNPS, J.U has performed metabolomics study for metabolite profiling of MAPs. Several works on UPLC-QTOF-MS analysis of *Luffa acutangula*, LC-QTOF-MS based metabolic profiling of *Coccinia grandis*, identification of bioactive constituents of *Momordica charantia* and *Lagenaria siceraria* fruits has been published in reputed impact journals. Researchers of SNPS, J.U have worked on the development of marker and biomarker profiles of the MAPs for the standardization and evaluation have resulted several impact publications. [Chanda et al., 2020, Biomedical chromatography, 34: 12 (e4950); Singha et al., 2020, Journal of Planar Chromatography, <https://doi.org/10.1007/s00764-020-00061-w>; Chanda et al., 2020, Phytochemical Analysis, PMID: 32683785; Sharma et al., 2019, Journal of AOAC international, PMID: 31619314; Biswas et al., 2019, Journal of Planar Chromatography, 32: 1 (1-6); Chanda et al., 2019, Biomedical Chromatography, 33(4): e4463; Chanda et al., 2018, Phytochemical Analysis, 30(2):148-155; Nag et al., 2017, Indian Journal of Pharmaceutical Education and Research, 51(2):337-342; Mukherjee et al., 2016, *Current Science*, 111 (1624-1630); Chanda et al., 2014, Natural Product Research, 28;21 (1926-1928); Mukherjee et al., 2013, Fitoterapia, 84, 227–236; Mukherjee et al., 2012, Journal of Ethno pharmacology 2012, 143, 424-434; Mukherjee et al, 2011, Drug Information Journal, 45: 1-14; Mukherjee et al, 2010 Phytochemical Analysis (in press); Pandit et al, 2010; Biomedical Chromatography, 2011, 25, 959-962, Gantait et al, 2010. J AOAC International 93(2):492-5].

- **Bio-prospecting of MAPs for development of therapeutically potent lead:**

- ***Exploring anti-ageing leads from MAPs:***

SNPS, J.U have been working on development of leads from natural resources like antiaging. Several components have been screened and evaluated in this context for their hyaluronidase, elastase and matrix-metalloproteinase inhibitory activities. This work has been explored by the industrial partner Parker Robinson Ltd, Kolkata through Department of Science & Technology, Govt. of India and Industry sponsored project at the Jadavpur University. Several research work has been reported in details in this aspects (Maity et al, 2012, Natural Product Research, 26, 1939–1941, Mukherjee et al, 2011, Natural Matrix-Metalloproteinase Inhibitors - Leads from Herbal Resources in: Bioactive Natural Products, Elsevier Science Publishers,

## Annual Report 2020-2021

Amsterdam; Mukherjee et al, 2011, Phytomedicine 19, 64-73; Nema et al, 2011, Archives of Dermatological Research 303, 247–252; Maity et al, 2011, Journal of Ethno pharmacology 137, 1300–1305).

- **Evaluating of anti-tyrosinase inhibitory potential of MAPs:**

SNPS, J.U and its research team have been working on the development lead from botanicals and formulate value added product for skin whitening. Several medicinal plants have been screened in respect to their anti-tyrosinase enzyme inhibition potential. These findings are being explored by Industrial partner Emami Ltd., Kolkata through a collaborative research project on “Varnya formulation” leading to product development. Several research findings have been published in several reputed impact journals.[Biswas et al., 2020, Pharmaceutical Development and Technology, doi.org/10.1080/10837450.2020.1835956; Mukherjee et al., 2018, Journal of Herbal Medicine, doi.org/10.1016/j.hermed.2018.09.002; Biswas et al., 2017, Food Chemistry, 232 (689-696); Biswas et al., 2016, Journal of Ethno pharmacology, 192 (283-291); Biswas et al., 2016, Natural Product Research, 30 (1451-54); Biswas et al., 2015, Industrial Crops and Products, 74 (319–326)]

- **Exploring anti-infective, immunomodulatory potential of MAPs:**

SNPS, J.U has performed a well-defined scientific works on “Studies on Rhizomes of *Nelumbo nucifera* Gaertn. (Family-Nymphaeaceae)” relating to phytochemical, pharmacological, antimicrobial studies on its rhizomes leads to several potential publications and patent. Works on isolation and quantification of ‘Betulinic acid’ from the rhizome of *Nelumbo nucifera*, which is a potential steroidal triterpenoid compound possessing antitumor, anti-HIV activity and found to possess significant anti-inflammatory activity against different edema model. An international patent has been made by CSIR (International patent – No- WO03011891) entitled “A Process for Isolation of Betulinic Acid useful as Anti-HIV, Anti-tumoral and Melanoma-Specific Cytotoxic Agent”. Based on the traditional and folklore uses, many pharmaco-therapeutic activities of the constituents and different extracts of rhizomes have been evaluated. SNPS, J.U has been contributed in the field of medicinal plant research which includes phytochemical, phyto-pharmacological, antimicrobial, antiviral, anti-leshmenia, hypoglycaemic, antiallergic and immune modulatory evaluation of different plant species including *Moringa oleifera*, *Cassia tora*, *Azadirachta indica*, *Dilenia indica*, *Boswellia serrata*, *Leucas lavandulaefolia*, *Drymaria cordata*, *Cassia fistula*, *Ficus recemosa*, *Asparagus recemosus*, *Baliospermum montanum*, *Curculigo orchioides*, *Albizia lebbeck*, Indian Hypericum species and different other plant species along with their formulation of Indian folklore and traditional medicine. all these phytotherapeutic research findings has been published in reputed peer reviewed impact journals [Goswami et al., 2019, Phytomedicine, 51(94–103); Goswami et al., 2016, Indian Journal of Traditional Knowledge, 15 (474-481); Sill et al., 2016, International Immuno-pharmacology, 30 (18-26); Sarkar et al., 2014, Journal of Ethnopharmacology, 154 (170-175); Sarkar et al., 2015, Journal of Pharmacy and Pharmacology, 67 (951-962); Thakur et al., 2015, Indian Journal of Traditional Knowledge, 14 (658-663); Mukherjee et al., 2013, Microbiological Research, 168 (238–244); Venkatesh et al 2011, Planta Medica, 77: 1–3; Venkatesh et al 2010 Pharmaceutical Biology, 2010, 48(11): 1213-7; Venkatesh et al 2009, Journal of Ethnopharmacology, 126: 434-436; Venkatesh et al 2010, Immunopharmacology and Immunotoxicology 32(2): 272-276; Venkatesh et al 2010, Pharmaceutical Biology, 1-5], Nurul, et al., 2011, International Immuno pharmacology 11 (11), 1766-1772, Maity et al., 2012, Natural Product Research, 26 (20), 1939–1941; Mukherjee et al, 2010, Phytochemical Analysis, 21: 556-560; Mukherjee et al, 2010, Journal of Ethnopharmacology, 128 (2), 490–494; Mukherjee et al, 2010, Immunopharmacology and Immunotoxicology, 2010, 32(3): 466-472]; [Mukherjee et al, 2009, Pharmacy and Pharmacology, 61(4): 407–422; Mukherjee et al., 1997, J. Ethnopharmacology 58: 207-213].

- **Drug development for Alzheimer’s diseases as AChE inhibitors:**

SNPS, J.U has been working on cognitive disorder especially acetyl cholinesterase [AChE] inhibitors from MAPs for development of leads for Alzheimer’s disease (AD). It has developed several bioactivity guided isolation techniques for natural AChE inhibitors. The school has worked on evaluation and exploration of acetyl cholinesterase activity for several Indian medicinal plants which has been reported in reputed impact journals. SNPS, J.U have established screening techniques for the development of acetyl cholinesterase inhibitors from MAPs and have screened a group of medicinal plants and spices for their potential therapeutic

## Annual Report 2020-2021

efficacy. Screening of various Indian medicinal plants has been reported in high impact journals. [Das et al., 2019, Journal of Herbal Medicine, 22: 100348; Dalai et al., 2013, Oriental Pharmacy and Experimental Medicine, 14 (31-35), Bhadra et al 2012, Natural Product Research, 26 (16): 1519-1522; Bhadra et al 2011, Fitoterapia (82): 342–346; Satheesh et al 2009, Phytotherapy Research, 24 (4): 629-631; Satheesh et al 2009, Phytomedicine, 17 (3): 292-295). This may be helpful in exploring natural health products effective against Alzheimer's disease [Mukherjee et al 2011, Mini Reviews in Medicinal Chemistry (11), 247-262; Mukherjee et al 2007, Behavioural Brain Research, 178 (2):221-228; Mukherjee et al 2007, Planta Medica, 73: 285-288; Mukherjee et al 2007, Phytomedicine 14(4): 289-300; Mukherjee et al 2007, Phytotherapy Research, 21(12), 1142-1145; Bhadra, et al., 2012, Natural Product Research 26 (16), 1519-1522].

- ***Development of value added herbal formulation and evaluation:***

SNPS, J.U has developed and patented the techniques for value added herbal formulation – ‘Herbosomes’ to increase the bioavailability of therapeutically potent plant secondary metabolites with lower half life. Herbosomes are a value added herbal formulation for better absorption and therapeutic potentials have been developed by SNPS, J.U and patented. This is a concept on metabolomic approaches for herbal formulation development, which is unique in its nature as most of the secondary metabolites have very less half-life. SNPS, J.U has developed an improved process of preparing herbosomes, which is a value added herbal drugs delivery system to sustain the action and also to increase the bioavailability of several therapeutically important phytomolecules like betulinic acid, ursolic acid, catechine, ferulic acid, curcumin, quercetin, naringenin, hesperetin etc which have been published in reputed journals. [Biswas et al., 2019, Drug Development and Industrial Pharmacy 45(6), 946-958, Harwansh et al., 2017, Journal of Molecular Liquids, 237, 361-37; Harwansh et al., 2016, Journal of Photochemistry & Photobiology, B: Biology, 160 (318–329); Harwansh et al., 2015, Life Sciences 141(202–211); Bhattacharyya et al., 2014, Journal of Photochemistry and Photobiology B: Biology, 130 (293–298), Bhattacharyya et al., 2013, Journal of the Science of Food and Agriculture, 94 (1380-1388), Mukherjee et al., 2011, Food Research International, 44: 1088-1093; Maiti et al 2010, Journal of Science and Food Agriculture, 90: 43–51; Maiti et al. 2006, J. Pharmacy and Pharmacology 58: 1227-1233; Maiti et al., 2007, International J. Pharmaceutics 330: 155-163; Mukherjee et al, 2009, J. Pharmacy and Pharmacology 61: 407–422; Maiti et al., 2009, AAPS PharmSciTech., 10 (3) : 943-950 ; Venkatesh et al., 2009, Food Chemistry 57 (11): 4559–4565; Mukherjee Patent No: 00056/KOL/2006].

- ***Safety evaluation of herbal medicine:***

SNPS, J.U has been working on various parameters related to drug safety with special emphasis to botanicals including an overview on pharmacovigilance, safety study, risk management on drug and pharmaceuticals including natural health products and dietary supplements. The school has been working on safety evaluation of herbs and polyherbal formulation through metabolism mediated herb-drug interaction, which is one of the potential approaches in the field of pharmacovigilance study on herbal medicines. These safety prospects include the CYP450 modulating enzyme mediated interaction of herbal medicine and presence of contaminants such as heavy metals, persistent pesticides and aflatoxins and mostly for the evaluation of CYP450 enzyme predominance. SNPS, J.U are involved in assessing the safety of herbs through various models on drug modulating enzymes. Some potential publications has been made in this area by the researchers of SNPS, J.U (Kar et al., 2020, Journal of Ethnopharmacology, 266: 113457; Bahadur et al., 2017, Synergy, 4 (1–7); Bahadur et al., 2016, Indian Journal of Pharmacology, 48 (576-81), Ahmmed et al., 2016, Journal of Ethnopharmacology, 78 (34–39). Kar et al., 2017, Journal of the Science of Food and Agriculture, 97 (333-340); Ahmmed et al., 2015, Indian Journal of Traditional Knowledge, 14 (614-619); Ahmed et al., 2015, Indian Journal of Traditional Knowledge, 14 (614-619); Bahadur et al., 2015, Indian Journal of Traditional Knowledge, 14 (643-649); Kar et al., 2015, Indian Journal of Traditional Knowledge, 14 (626-631); Harwansh et al., 2014, Journal of Ethnopharmacology, 153 (674–681); Pandit et al 2012, Food Research International, 45 (1): 69–74; Pandit et al 2012 Phytotherapy Research, [In Press] doi: 10.1002/ptr. 3426; Pandit et al 2011, JPC - Journal of Planar Chromatography - Modern TLC; Ponnusankar et al 2011, Journal of Ethnopharmacology 133 (1), 120-125; Ponnusankar et al 2011 Phytotherapy Research 25, 151–154. Mukherjee et al 2011, Drug Information Journal, 45: 1–14; Mukherjee et al 2010, Chinese Herbal Medicines, 2(1): 1-15; Mukherjee et al 2010, Drug Information Journal, 40: 131–139; Mukherjee et al 2008, Indian Journal of Traditional knowledge, 7 (3): 379-383; Mukherjee and

## Annual Report 2020-2021

Houghton, 2009. Evaluation of Herbal Medicinal Products - Perspectives of Quality, Safety and Efficacy” Pharmaceutical Press, Royal Pharmaceutical Society of Great Britain, UK), Pandit, et al., 2012, Food Research International 2012, 45 (1), 69–74, Mukherjee et al., 2011, Phytomedicine 9 (1), 64-73.

- **Exploring Synergy in MAPs research:**

Multi-target approaches are increasingly applied to treat complex diseases in different disciplines of medicine – mainly based on empirical knowledge. There is a need to elucidate further the combinatory actions in the context of the theoretical basis, experimental design and quantification of synergy at different dose and effect levels. Thus exploring synergistic actions/effects of specified Medicinal and aromatic plants and their active compounds, including the "mechanistic" principles of synergy and the use of network analysis and suitable modern bioinformatics approaches to develop phytopharmaceuticals from botanicals. SNPS, J.U working on synergy research approach in terms of exploring and determining combinatory and synergistic (inter)actions of compounds and drugs made from traditional Indian medicinal plants through network pharmacology, validation of biological activity, omics techniques, multilevel systemic interaction with targets gene, protein, pathways. Based on this concept SNPS, J.U have published few articles in reputed journals. SNPS, J.U is also associated with the Synergy forum, University of Bonn, Bonn, Germany for promotion of medicinal plants through metabolomic studies with their chemical and biological perspectives. [Banerjee et al., 2020, Phytochemical Analysis, <https://doi.org/10.1002/pca.3011>; Banerjee et al., 2019, Phytomedicine, 60: 152944; Mukherjee et al., 2018, Synergy, 7:30-33]

- **Dissemination of Knowledge for promotion and development of MAPs:**

SNPS, J.U has been working extensively on dissemination of knowledge for promotion of ethnopharmacology, ethno-medicine and Medicinal and aromatic plant research at large. SNPS, J.U has organized several very effective and successful International/National conferences/workshops/symposiums with the involvement of the renowned scientists and resource persons all over the world to develop national international collaborations and coordination. SNPS, J.U is working on the development of therapeutic leads from natural resource and has been working with several projects from DST, DBT and others.

### B. Major Research Project:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
“DBT-AYUSH Network on R&D Activities related to SARS-CoV-2 Virus and COVID-19 Disease”; Project entitled ““Sub-Network 1: Studies on anti-SARS-CoV-2 activity of selected medicinal plants and formulations in cell culture model of virus infection”.	Individual	<b>Prof. Pallab Kanti Haldar</b>	Department of Biotechnology, Govt. of India, New Delhi (DBT)	<b>Vide sanction letter F. No. BT/PR40374/TRM/120/484/2020, Dated 24.08.2020,</b>
“Phytopharmaceutical development of <i>Trachyspermum ammi</i> for post kala-azar Dermal leishmaniasis (PKDL)”	Individual	<b>Prof. Pallab Kanti Haldar &amp; Prof. Pulok K Mukherjee</b>	Department of Biotechnology, Govt. of India, New Delhi (DBT),	vide sanction letter F No. BT/PR29025/TRM/120/206/2018 Dated 20-09-2019

### Annual Report 2020-2021

“Medicinal plants of Cucurbitaceae family – Metabolomic Study and Therapeutic Evaluation”.	Individual	<b>Prof. Pulok K. Mukherjee</b>	Department of Science and Technology (DST) Science & Engineering Research Board	Sanction order No: EMR/2016/07037 dated 18.06.2018
Zebrafish: a model for drug discovery	Individual	<b>Dr. Pallab Kanti Haldar</b>	JU-RUSA 2.0 Departmental support towards upgradation in research	R-11/736/19 dated: 27.06.19
Development of sensor probes for quantification of active constituents in <i>Andrographis paniculata</i> and <i>Piper nigrum</i> using Near Infrared Spectroscopy	Individual	<b>Prof. Pulok K. Mukherjee</b>	National Medicinal Plants Board	Sanction order No. Z.18017/187/CSS/R&D/WB-02/2017-18-NMPB-IV A dated 8.01.2018

#### C. Doctoral Research Activities

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
	3

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

##### Articles Published in Journals:

Name of the teacher	Name of the Article	Name of the journal, Date of publication and volume
D. Sing, S.N. Jana, S. Banerjee, R. Mallik, K. Majumdar, <b>P.K. Halder</b> , A. Bandyopadhyay, N. Sharma, R. Bandyopadhyay, <b>P.K. Mukherjee</b> ,	Rapid estimation of piperine in black pepper: Exploration of Raman spectroscopy,	Phytochemical Analysis. (2021).1099-1565 <a href="https://doi.org/10.1002/pca.3080">https://doi.org/10.1002/pca.3080</a> .
<b>P.K. Mukherjee</b> , S. Singha, A. Kar, J. Chanda, S. Banerjee, B. Dasgupta, <b>P.K. Haldar</b> , N. Sharma,	Therapeutic importance of Cucurbitaceae: A medicinally important family,	Journal of Ethnopharmacology. 282 (2022) 114599. <a href="https://doi.org/10.1016/j.jep.2021.114599">https://doi.org/10.1016/j.jep.2021.114599</a> .

**Annual Report 2020-2021**

D. Sing, S. Banerjee, S.N. Jana, R. Mallik, S.G. Dastidar, K. Majumdar, A. Bandyopadhyay, R. Bandyopadhyay, <b>P.K. Mukherjee,</b>	Estimation of Andrographolides and Gradation of Andrographis paniculata Leaves Using Near Infrared Spectroscopy Together With Support Vector Machine,	Front Pharmacol. 12 (2021) 629833. <a href="https://doi.org/10.3389/fphar.2021.629833">https://doi.org/10.3389/fphar.2021.629833</a>
A.G. Panossian, T. Efferth, A.N. Shikov, O.N. Pozharitskaya, K. Kuchta, <b>P.K. Mukherjee,</b> S. Banerjee, M. Heinrich, W. Wu, D. Guo, H. Wagner,	Evolution of the adaptogenic concept from traditional use to medical systems: Pharmacology of stress- and aging-related diseases,	Medicinal Research Reviews. 41 (2021) 630–703. <a href="https://doi.org/10.1002/med.21743">https://doi.org/10.1002/med.21743</a> .
<b>P.K. Mukherjee,</b> S. Banerjee, S. Biswas, B. Das, A. Kar, C.K. Katiyar,	Withania somnifera (L.) Dunal - Modern perspectives of an ancient Rasayana from Ayurveda,	Journal of Ethnopharmacology. 264 (2021) 113157. <a href="https://doi.org/10.1016/j.jep.2020.113157">https://doi.org/10.1016/j.jep.2020.113157</a> .
<b>P. Mukherjee,</b> S. Banerjee, A. Kar	Molecular combination networks in medicinal plants: understanding synergy by network pharmacology in Indian traditional medicine	Phytochemistry Reviews. (2021) 1–11. <a href="https://doi.org/10.1007/s11101-020-09730-4">https://doi.org/10.1007/s11101-020-09730-4</a>
A. Kar, <b>P.K. Mukherjee,</b> S. Saha, S. Banerjee, D. Goswami, M.G. Matsabisa, R. Charoensub, T. Duangyod, , Journal of	Metabolite profiling and evaluation of CYP450 interaction potential of ‘Trimada’ - an Ayurvedic formulation	Ethnopharmacology. 266 (2021) 113457. <a href="https://doi.org/10.1016/j.jep.2020.113457">https://doi.org/10.1016/j.jep.2020.113457</a>
P. Debnath, B. Das, S. Biswas, A. Kar, <b>P.K. Mukherjee,</b>	Quality evaluation and quantification of cucurbitacin E in different cultivars of Cucumis sativus L. fruit by a validated high-performance thin-layer chromatography method,	JPC-J Planar Chromat. 34 (2021) 139–146. <a href="https://doi.org/10.1007/s00764-021-00097-6">https://doi.org/10.1007/s00764-021-00097-6</a>
S. Biswas, <b>P.K. Mukherjee,</b> A. Kar, S. Bannerjee, R. Charoensub, T. Duangyod,	Optimized piperine–phospholipid complex with enhanced bioavailability and hepatoprotective activity	Pharmaceutical Development and Technology. 26 (2021) 69–80. <a href="https://doi.org/10.1080/10837450.2020.1835956">https://doi.org/10.1080/10837450.2020.1835956</a> .
S. Biswas, <b>P.K. Mukherjee,</b> A. Kar, S. Bannerjee, S.N. Jana, <b>P.K. Haldar,</b> N. Sharma,	Enhanced permeability and photoprotective potential of optimized p-coumaric acid-phospholipid complex loaded gel against UVA mediated oxidative stress,	Journal of Photochemistry and Photobiology B: Biology. 221 (2021) 112246. <a href="https://doi.org/10.1016/j.jphotobiol.2021.112246">https://doi.org/10.1016/j.jphotobiol.2021.112246</a>
S. Banerjee, A. Kar, <b>P.K. Mukherjee,</b> <b>P.K. Haldar,</b> N. Sharma, C.K. Katiyar, .	Immunoprotective potential of Ayurvedic herb Kalmegh (Andrographis paniculata) against respiratory viral infections – LC–	Phytochemical Analysis. 32 (2021) 629–639. <a href="https://doi.org/10.1002/pca.3011">https://doi.org/10.1002/pca.3011</a>

**Annual Report 2020-2021**

	MS/MS and network pharmacology analysis,	
Singha S, Biswas S, Dasgupta B, Kar A, <b>Mukherjee Pulok K</b>	Standardization of some plants of cucurbitaceae family by validated High performance thin-layer chromatography (HPTLC)	JPC – Journal of Planar Chromatography – Modern TLC(2020) DOI: 10.1007/s00764-020-00061-w.
Chanda J, <b>Mukherjee Pulok K.</b> , Kar A, Maitra PK, Singha S, <b>Halder P K</b> , Gajbhiye R, Vishnuvardh R	LC–QTOF–MS-based metabolite profiling and evaluation of $\alpha$ -glucosidase inhibitory kinetics of Coccinia grandis fruit	Biomedical Chromatography (2020) <a href="https://doi.org/10.1002/bmc.4950">https://doi.org/10.1002/bmc.4950</a>
Chanda J, <b>Mukherjee Pulok K.</b> , Biswas R, Singha S, Kar A, <b>Halder P K</b>	Lagenaria siceraria and it's bioactive constituents in carbonic anhydrase inhibition: A bioactivity guided LC–MS/MS Approach	Phytochemical Analysis (2020) <a href="https://doi.org/10.1002/pca.2975">https://doi.org/10.1002/pca.2975</a>

**E. Research Articles Published in Edited Volumes during the year:**  
(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

Name of the teacher	Name of the Book	Name of the publisher
<b>Prof. Pulok Kumar Mukherjee</b>	Traditional Medical System (TMS) for Sustainable Healthcare in India in Book title "Drug Discovery and Drug Deelopment "	Springer, 2021
<b>Prof. Pulok Kumar Mukherjee</b>	Drugs from Our Ancestors: Tradition to Innovation in book titled "Herbal Medicine in India: Indigenous Knowledge, Practice, Innovation and its Value"	Springer Singapore, 2020 620 pages ISBN 978-981-13-7247-6

**H. Research Collaboration with other Departments/Institutes/Industries:**

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Prof. Pulok K. Mukherjee</b>	Dr. Rawiwan Chorensu	Mae Fah Luang University, Chiang Rai, Thailand,	Potential collaborations have been made with reputed institutions and industries for academic exchange and product development from natural resources through the quality research work. In this context some memorandum of understanding [MOUs] has been signed evidenced based validation and exploration of therapeutic potential of natural products for promotion	2020 onwards



**Annual Report 2020-2021**

			and development of traditional medicine	
--	--	--	---	--

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:**

**A. Books/Monographs Published :**

Name of the teacher	Name of the Book	Name of the publisher	ISSN/ISBN No.	Year
<b>Prof. Pulok Kumar Mukherjee</b>	Traditional Medical System (TMS) for Sustainable Healthcare in India in Book title "Drug Discovery and Drug Development "	Springer, 2021	978-981-15-8002-4	2021
<b>Prof. Pulok Kumar Mukherjee</b>	Drugs from Our Ancestors: Tradition to Innovation in book titled "Herbal Medicine in India: Indigenous Knowledge, Practice, Innovation and its Value"	Springer Singapore, 2020 620 pages ISBN 978-981-13-7247-6	978-981-13-7247-6	2020

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
7th International Congress of Society for Ethnopharmacology (SFEC 2020) on "Ethnopharmacology in development of scientifically validated quality products from Medicinal plants and Regulatory aspects"	Prof Pulok K Mukherjee		Jamia Hamdard, New Delhi, India	15-17, February 2020
A mini symposium & signing of memorandum of understanding (MoU) for collaborative research programs between Institute of Biodiversity and Sustainable Development (IBSD), Imphal & Jadavpur University (JU)	Prof Pallab K Halder		TEQUIP Building, Jadavpur University	11 November, 2020
Capacity building and Training on Instrumental Techniques with One day training on "High Performance Thin Layer	Prof Pallab K Halder		TEQUIP Building, Jadavpur University	5 August, 2021

**Annual Report 2020-2021**

Chromatography for evaluation and validation of Natural Products" at IBSD-JU Centre				
Capacity building and Training on Instrumental Techniques with One day training on "GC-MS based analysis for Quality Evaluation and Validation of Natural Products" at IBSD-JU Centre	Prof Pallab K Halder		TEQUIP Building, Jadavpur University	8 October, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Pulok Kumar Mukherjee</b>	<b>Invited Lectures</b>	7th International Congress of Society for Ethnopharmacology (SFEC 2020) on "Ethnopharmacology in development of scientifically validated quality products from Medicinal plants and Regulatory aspects"	Jamia Hamdard, New Delhi, India	15-17 February, 2020
<b>Prof. Pallab K. Halder</b>	<b>Invited Lectures</b>	8th International Congress of the Society for Ethnopharmacology-India (SFEC 2021) on "Ethnopharmacology & Medicinal Plants – Approach towards product development".	Poona College of Pharmacy, Bharati Vidyapeeth (Deemed to be University), Pune,	27-29 August, 2021

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

Name of the Teacher	Name of the Seminar	Duration and place
<b>Prof. Pulok Kumar Mukherjee</b>	7th International Congress of Society for Ethnopharmacology (SFEC 2020) on "Ethnopharmacology in development of scientifically validated quality products from Medicinal plants and Regulatory aspects"	February 15-17, 2020 Jamia Hamdard, New Delhi, India
<b>Prof. Pallab K. Halder</b>	8th International Congress of the Society for Ethnopharmacology-India (SFEC 2021) on "Ethnopharmacology &	27-29 August, 2021 Poona College of Pharmacy, Bharati Vidyapeeth (Deemed to be University), Pune,

## Annual Report 2020-2021

	Medicinal Plants – Approach towards product development”.	
--	---	--

**6. Major Achievements of the School during the year:**  
**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies:**

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Prof. Pallab K. Haldar</b>	Recipient of M. Pharm. Scholarship	UGC	West Bengal, India
<b>Prof. Pallab K. Haldar</b>	Travel Grant Award,	Jadavpur University	West Bengal, India
<b>Prof. Pallab K. Haldar</b>	Visiting Professor,	Bengal Institute Pharmaceutical Sciences, Kalyani	West Bengal, India
<b>Prof. Pulok K. Mukherjee</b>	FNAAS (Fellow of the National Academy of Agricultural Sciences, India)	National Academy of Agricultural Sciences	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	FNASc (Fellow of the National Academy of Sciences, India)	National Academy of Sciences	Uttar Pradesh, India
<b>Prof. Pulok K. Mukherjee</b>	FRSC (Fellow of the Royal Society of Chemistry, UK)	Royal Society of Chemistry	United Kingdom
<b>Prof. Pulok K. Mukherjee</b>	NASI - Reliance Industries Platinum Jubilee Award, National Academy of Sciences, India	National Academy of Sciences	Uttar Pradesh, India
<b>Prof. Pulok K. Mukherjee</b>	Birbal Sahni Birth Century Award, Indian Science Congress, India	Indian Science Congress	West Bengal, India
<b>Prof. Pulok K. Mukherjee</b>	TATA innovation Fellowship, Dept. of Biotechnology, Govt. of India	Dept. of Biotechnology	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	TWAS Visiting Expert Award, The World Academy of Sciences, Italy	The World Academy of Sciences	Italy
<b>Prof. Pulok K. Mukherjee</b>	Biotechnology Overseas Award, Dept. of Biotechnology, Govt. of India	Dept. of Biotechnology	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	BOYSCAST Fellowship, Dept. of Science & Technology, Ministry of Science & Technology, Govt. of India	Dept. of Science & Technology	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	IASTAM Award, Indian Ass. for the Study of Traditional Asian, India	Indian Ass. for the Study of Traditional Asian	India
<b>Prof. Pulok K. Mukherjee</b>	Col. Ram Nath Chopra Oration award, Indian Pharmacological Society, India.	Indian Pharmacological Society	West Bengal, India
<b>Prof. Pulok K. Mukherjee</b>	The Fujii Otsuka Award, Tokushima University, Japan	Tokushima University	Japan

**Annual Report 2020-2021**

<b>Prof. Pulok K. Mukherjee</b>	Guest editor of Journal of Ethnopharmacology, a special issue on Ayurveda, published from, Elsevier Science.	Journal of Ethnopharmacology	Netharland
<b>Prof. Pulok K. Mukherjee</b>	DIA-Out Standing Service Award, Drug Information Association, USA	Drug Information Association	United States America
<b>Prof. Pulok K. Mukherjee</b>	AICTE Career Award For Young Teachers, All India Council For Technical Education, Govt. of India, New Delhi	All India Council For Technical Education	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	APTI- Best Pharmaceutical Scientist of the Year, Association of Pharmaceutical Teachers' of India (APTI), India	Association of Pharmaceutical Teachers' of India (APTI), India	Bengaluru, India
<b>Prof. Pulok K. Mukherjee</b>	Associate Editor, Journal of Ethnopharmacology, Elsevier Science, the Netherlands	Journal of Ethnopharmacology	Netherlands
<b>Prof. Pulok K. Mukherjee</b>	Guest editor of Journal of Ethnopharmacology, a special issue on Ashwagandha (upcoming),	Journal of Ethnopharmacology	Netherlands
<b>Prof. Pulok K. Mukherjee</b>	Guest editor of Indian Journal of Traditional Knowledge, special issue on "Ethnopharmacology and Validation of Traditional Medicine", [NISCAIR], CSIR, New Delhi.	Council of Scientific & Industrial Research	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	Guest editor of Indian Journal of Traditional Knowledge, special issue on "Traditional knowledge of the Northeast India", [NISCAIR], CSIR, New Delhi.	Council of Scientific & Industrial Research	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	Guest editor of Drug Information Journal, special issue on "Natural Health Products", Drug Information Association [DIA], USA	Drug Information Association	United States America
<b>Prof. Pulok K. Mukherjee</b>	Advisor, American Herbal Pharmacopoeia; 3051 Brown's Lane; Soquel, CA 95073 USA	American Herbal Pharmacopoeia	United States America
<b>Prof. Pulok K. Mukherjee</b>	Council member, Society for TCM Pharmaceutical Analysis under the world Federation of Chinese Medicine Societies (WFCMS), Shanghai, China	Society for TCM Pharmaceutical Analysis under the world Federation of Chinese Medicine Societies	Shanghai, China
<b>Prof. Pulok K. Mukherjee</b>	Panel expert, Phytopharmaceutical drugs proposal for regulatory approval, Central Drugs Standard Control Organization (CDSCO),	Central Drugs Standard Control Organization	New Delhi, India

**Annual Report 2020-2021**

	Ministry of Health and Family Welfare, <b>Govt.</b> of India		
<b>Prof. Pulok K. Mukherjee</b>	Member of the Empowered Committee, Consortium for Academic and Publication Ethics (CARE), University Grant Commission (UGC), New Delhi	University Grant Commission	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	Expert committee member, Ayurvedic, Siddha and Unani Drugs Technical Advisory Board (ASUDTAB), Ministry of AYUSH, Govt. of India, New Delhi	Ministry of AYUSH	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	Member of the Governing Body, Birbal Sahni Institute of Palaeosciences – An autonomous institute under Dept. of Science & Technology, Govt. of India, New Delhi	Birbal Sahni Institute of Palaeosciences	New Delhi, India
<b>Prof. Pulok K. Mukherjee</b>	Technical Committee Expert, Extension & Awareness of Manipur State Biofeul Board (MSSB), Manipur, India	Extension & Awareness of Manipur State Biofeul Board	Manipur, India
<b>Prof. Pulok K. Mukherjee</b>	Member, Research Council of CSIR- North East Institute Of Science And Technology, Jorhat	Research Council of CSIR- North East Institute Of Science And Technology	Jorhat, India
<b>Prof. Pulok K. Mukherjee</b>	Member, Scientific Advisory Committee (SAC) meeting of IASST, Guwahati	Institute of Advanced Study in Science and Technology	Guwahati, India
<b>Prof. Pulok K. Mukherjee</b>	Member, Research Advisory Committee (RAC), Manipur University, Chanchipur, Imphal	Manipur University	Imphal, India
<b>Prof. Pulok K. Mukherjee</b>	Governing Body Member, Rajiv Gandhi Centre for Biotechnology (RGCB), Thiruvananthapuram, Kerala	Rajiv Gandhi Centre for Biotechnology	Kerala, India
<b>Prof. Pulok K. Mukherjee</b>	Secretary, Society for Ethnopharmacology, India, For details please visit: <a href="http://www.ethnopharmacology.in">www.ethnopharmacology.in</a> .	Society for Ethnopharmacology	West Bengal, India
<b>Prof. Pulok K. Mukherjee</b>	President, International Society for Ethnopharmacology, Switsherland, For details please visit: <a href="http://www.ethnopharmacology.org">www.ethnopharmacology.org</a>	International Society for Ethnopharmacology	Switsherland

**C. Awards received by Research Scholars/students:**

Best poster award given to Mr. Amit Kar in 6th International congress of Society for Ethnopharmacology (SFEC-2019) on Medicinal plants and traditional medicine Ethnopharmacology at the interface of local and global needs, Manipal, Karnataka, February 8-10, 2019

## Annual Report 2020-2021

### NUCLEAR STUDIES AND APPLICATION

Phone : 033-2340-6139

033-2335-5813 / 5215

Director : Prof. Amitava Gupta

E-mail : dir.nuclearstudies@jadavpuruniversity.in

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Master in Nuclear Engineering	2	1 <sup>st</sup> year	15
		2 <sup>nd</sup> year ...	15

#### 3. Faculty Members in the School:

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
1	1	2	4

#### 4. Research Activities:

##### A. Areas of Research Activities : (Broad Areas)

Reactor Thermal Hydraulics, Nuclear Safety, Surface science and engineering, Nuclear Materials, Computational and experimental fluid dynamics and heat transfer, Phase change heat transfer, Spray and Atomisation, Nuclear detectors and Instrumentation Systems, Nuclear Reactor Control, Real-time & embedded system Applications, Wireless sensor networks applications, Electrical Drive applications in Nuclear Power Plants, Safety, Security and Safeguards, Application of machine Learning Techniques in Nuclear Power Plants, Single photon emission computed tomography system based on silicon photomultiplier, Sign language gesture recognition, FPGA based instrumentation system for nuclear pulse processing and isotope identification.

##### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Indigenously Developed Spectroscopic Radiation Portal Monitors for National Security	Individual	Prof. Amitava Gupta	MHRD/DRDO IMPRINT PROGRAM (with IIT Kanpur)	Continuing since 2018

## Annual Report 2020-2021

Multi-channel stackable input perfect reconstruction transmultiplexer for satellite communication	Individual	<b>Dr. Amitabha Das</b>	ISRO (Proposal Submitted)  (Funds awaited)	2 years
A fundamental investigation on the generation of bioaerosols from a visco-elastic mucus mimetic fluid layer in a microchannel	Individual	<b>Dr. Aranyak Chakravarty</b>	SERB-Startup Research Grant (Proposal Submitted)	2 years

### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
	3 (Dr. Amitabha Das is the co-guide to the students registered to HBNI)

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No. /Article No., Year of publication)

1. A. Chakravarty, P. Datta, K. Ghosh, S. Sen, "Pressure dependence of dryout in a heat-generating porous debris bed", *Sadhana*, **45**, p. 221, 2020
2. P. Datta, A. Chakravarty, R. Saha, S. Chauhuri, K. Ghosh, A. Mukhopadhyay, S. Sen, A. Dutta, P. Goyal, "Experimental investigation on the effect of initial pressure conditions during steam-water direct contact condensation in a horizontal pipe geometry", *International Communications in Heat and Mass Transfer*, **121**, p. 105082, 2021
3. Datta, Amitava, Mithun Das, and Ranjan Ganguly. "Design, Development, and Technological Advancements in Gas Burners for Domestic Cook Stoves: A Review." *Transactions of the Indian National Academy of Engineering* (2021): 1-25.
4. Das, M., Ganguly, R., Datta, A., Verma, M. M., & Bera, A. K. (2021). "Performance improvement of a domestic Liquefied Petroleum Gas cook stove using an extended spill-tray and an annular metal insert". *Journal of Thermal Science and Engineering Applications*, 13(2), 021016.
5. Jana, A., Singh, S.K., Gupta, A., Das, S., Basu, K., Samanta, S., Raut, R., Ghugre, S.S., Sinha, A.K., "Development of a zero-cost multichannel analyser based on digital signal processing for  $\gamma$  -ray spectroscopy using the PC sound card", *Pramana - Journal of Physics*, 94 (1), art. no. 20, 2020.
6. Bose, D., Hazra, A., Mukhopadhyay, S., Gupta, A., "A Coordinated Control Methodology for Rapid Load-Following Operation of a Pressurized Water Reactor Based Small Modular Reactor", *Nuclear Engineering and Design*, 367, art. no. 110748, 2020.
7. Yadav, D.K., Gupta, A., Munshi, P., "Design of NDI-SMC based robust hybrid nonlinear controller for load following operation in pressurized water reactor", *Nuclear Engineering and Design*, 363, art. no. 110604, 2020.

## Annual Report 2020-2021

8. Banerjee, S., Bose, D., Hazra, A., Chattopadhyay, S., Ghosh, K., Gupta, A., “Controller design for operation of a 700 MWe PHWR with limited voiding”, *Nuclear Engineering and Design*, 357, art. no. 110370, 2020.

**E. Research Articles Published in Edited Volumes during the year:**

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Prof. Amitava Gupta, Robust Control of Nuclear Reactors with Proportional-Integral-Derivative (PID) Controllers: The Fractional Order (FO) and Interval Approaches, *Dynamics and Control of Energy Systems*, Achintya Mukhopadhyay, Swarnendu Sen, Dipankar Narayan Basu, Sirshendu Mondal (eds.), Springer, pp. 145-167, ISBN: 978-981-15-0536-2, 2020

**H. Research Collaboration with other Departments/Institutes/Industries:**

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Prof. Amitava Gupta		IIT Kanpur, MHRD, DRDO	Research Collaboration with IIT Kanpur under MHRD/DRDO IMPRINT Program	Since 2018

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year**

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Faculty Development Program on Patenting Technology and Process Innovations Related To Renewable Energy	Aranyak Chakravarty (jointly with Dr. Nirmalendu Biswas, Deptt. of Power Engg. JU) sponsored by TEQIP-III		Virtual	17-22 February, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Aranyak Chakravarty	Invited talk: Introduction to ANSYS and How to work with it	Webinar organized by Department of Mechanical Engineering, Kalyani	Virtual	One day, 29 August, 2020



## Annual Report 2020-2021

		Government Engineering College		
<b>Aranyak Chakravarty</b>	Invited talk: Relevance of Heat Transfer in the context of Nuclear Power Generation	Webinar organized by Department of Mechanical Engineering, Dr. B.C. Roy Engineering College	Virtual	One day 30 September, 2020

### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
<b>Aranyak Chakravarty, Mahesh V. Panchagnula, Neelesh A. Patankar,</b>	Fluid dynamic insights into the deposition of virus in deep lung	Americal Physical Society (APS) Division of Fluid Dynamics (DFD) Meetings, Seattle, USA	Virtual	22 November, 2020
<b>Mithun Das</b>	Effect of Different Surface Types of Loading Vessel Wall on Combustion Performance of a Domestic LPG Cook Stove	International Conference on Thermal Engineering and Management Advances	Jalpaiguri (Virtual)	19-20 December, 2020.

### OCEANOGRAPHIC STUDIES

Phone: 033-2457-2868/2871/2217

Director: Dr. Tuhin Ghosh

E-mail: dir.oceanography@jadavpuruniversity.in

#### 1. Vision and Mission of the School:

- A. Vision:** To develop manpower who would contribute towards a sustainable earth through understanding the natural phenomena and potential of oceans and coastal ecosystems.
- B. Mission:** The School serves as a platform where post-graduates from varied disciplines are given a basic understanding on the oceanic and coastal processes, and the consequent impacts on the community. The aim is to produce eager intellectual minds who can participate and contribute towards climate change adaptation through their research, innovation, and actions.

## Annual Report 2020-2021

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M.Phil. in Oceanography and Coastal Management	2	1 <sup>st</sup> year	11
		2 <sup>nd</sup> year	13

### 3. Faculty Members in the School:

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
2	0	2	4

### 4. Research Activities:

#### A. Areas of Research Activities:

Climate change, carbon dynamics, wetland and estuarine biogeochemistry, socio-economic studies in the deltas, socioecological challenges among the deltaic communities

#### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Living Deltas Hub	Individual	<b>Prof. Tuhin Ghosh</b> <b>Dr. Abhra Chanda</b>	UKRI-GCRF	2019-2024
Opportunities and trade-offs between the SDGs for food, welfare and the environment in deltas	Individual	<b>Prof. Sugata Hazra</b>	UKIERI-DBT	2019-2021, extended 2022
Study of carbon dynamics in the Hugli estuary and the near shore coastal waters	Individual	<b>Prof. Sugata Hazra</b>	NRSC, GoI	2020-2022
Geospatial assessment of mangrove's species discrimination in Indian Sundarbans, their health and its effect on environment and climate using airborne hyperspectral (AVIRIS NG) and RISAT-I remote sensing data	Individual	<b>Prof. Sugata Hazra</b>	SAC, GoI	2017-2021
Vulnerability Assessment of Mangroves and Corals of West Bengal, Odisha and Andaman Islands	Individual	<b>Prof. Sugata Hazra</b>	DST, GoI	2017-2021

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School

1	0
---	---

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

**(Name of authors, Title of the article, Name of the Journal, VolumeNo., Page No./Article No.,Year of publication)**

Adger N.W., Campos R.S.S, Codjoe S.N.A., Siddiqui T., **Hazra S.**, Das S., Adams, Maria Franco Gavonel M.F., Mortreux C., and Abu M. (2020). Perceived environmental risks and insecurity reduce future migration intentions in hazardous migration source area, *One Earth*, <https://doi.org/10.1016/j.oneear.2020.12.009>

Akhand A, Chanda A, Watanabe K, Das S, Tokoro T, **Hazra S**, Kuwae T (2021) Reduction in Riverine Freshwater Supply Changes Inorganic and Organic Carbon Dynamics, and Air-water CO<sub>2</sub> Fluxes in a Tropical Mangrove Dominated Estuary. *Journal of Geophysical Research: Biogeosciences*, 126, e2020JG006144. <https://doi.org/10.1029/2020JG006144>

Akhand A, Watanabe K, **Chanda A**, Tokoro T, Chakraborty K, Moki H, Tanaya T, Ghosh J, Kuwae T (2021) Lateral carbon fluxes and CO<sub>2</sub> evasion from a subtropical mangrove-seagrass-coral continuum. *Science of the Total Environment*, 752: 142190, <https://doi.org/10.1016/j.scitotenv.2020.142190>

Barik, J., Sanyal, P., **Ghosh, T.** and Mukhopadhyay, S.K. (2021) Carbon stock and storage pattern in the Sundarbans mangrove forest, NE coast of India. *Tropical Ecology*, Springer. <https://doi.org/10.1007/s42965-020-00130-5>

Basu S, **Chanda A**, Gogoi P, Bhattacharyya S (2021) A multi-decadal comparative analysis of a set of physicochemical and nutrient parameters in the tropical tidal creeks of Indian Sundarban mangrove biosphere reserve. *Thalassas: An International Journal of Marine Sciences*, 37: 303–312. <https://doi.org/10.1007/s41208-020-00273-1>

Basu S, **Chanda A**, Gogoi P, Bhattacharyya S (2021) Organochlorine pesticides and heavy metals in the zooplankton, fishes, and shrimps of tropical shallow tidal creeks and the associated human health risk. *Marine Pollution Bulletin*, 165, 112170, <https://doi.org/10.1016/j.marpolbul.2021.112170>

**Chanda A**, Das S, Bhattacharyya S, Akhand A, Das I, Samanta S, Choudhury SB, **Hazra S** (2020) CO<sub>2</sub> effluxes from an urban tidal river flowing through two of the most populated and polluted cities of India. *Environmental Science and Pollution Research*, 27:30093–30107 <https://doi.org/10.1007/s11356-020-09254-6>

**Chanda A**, Swain S, Das S, Seal A, Ghosh T, **Hazra S** (2021) Spatial variation of heavy metal accumulation in the sediments adjacent to different mangrove plant species within a mixed mangrove stand. *Soil and Sediment Contamination An International Journal*, <https://doi.org/10.1080/15320383.2020.1867505>

Das S., **Hazra S.**, Haque A., Rahman M., Nicholls R.J., Ghosh A., **Ghosh T.**, Salehin S., Campos R.S. (2021) Social vulnerability to environmental hazards in the Ganges-Brahmaputra-Meghna delta, India and Bangladesh *International Journal of Disaster Risk Reduction* 53 (2021), <https://doi.org/10.1016/j.ijdrr.2020.101983>

Das S, **Hazra S** (2020) Trapped or resettled: coastal communities in the Sundarbans Delta, India, *Forced Migration Review* 64, p 16-18, [www.fmreview.org/issue64](http://www.fmreview.org/issue64)

Das, I, Lauria, V, Kay, S, Cazcarro, I, Arto I, Fernandes J A and **Hazra S**, (2020). ‘Effects of climate change and management policies on marine fisheries productivity in the north-east coast of India.’ *Science of The Total Environment*, <https://doi.org/10.1016/j.scitotenv.2020.138082>

Das, S, Ghosh, A, **Hazra, S.**, **Ghosh, T.**, Campos R S, Samanta S., (2020). Linking IPCC AR4 & AR5 frameworks for assessing vulnerability and risk to climate change in the Indian Bengal Delta. *Progress in Disaster Science*, <http://doi.org/10.1016/j.pdisas.2020.100110>

Das, S., **Hazra, S.**, Haque, A., Rahman, M., Nicholls, R.J., Ghosh, A., **Ghosh, T.**, Salehin, M. and Safra de Campos, R. (2021) Social vulnerability to environmental hazards in the Ganges Brahmaputra-Meghna delta, India and Bangladesh. *International Journal of Disaster Risk Reduction*, Elsevier. <https://doi.org/10.1016/j.ijdrr.2020.101983>

## Annual Report 2020-2021

- Ghosh T, **Hazra S**, Das Anup Kumar(2021). Potential of ALOS-2 PALSAR-2 Strip Map data for lithofacies identification and geological lineament mapping in vegetated fold-thrust belt of Nagaland, India. *Advances in Space Science*. <http://doi.org/10.1016/j.asr.2021.09.007>
- Ghosh, S. and **Ghosh, T.** (2021) The Quest for Quality Education: an Analysis of Professional Qualification of Teachers in Schools of Basanti Block, Indian Sundarban Delta. *International Journal of All Research Education and Scientific Methods*, Vol 9, ISSUE 3.
- Giri S, Purkayastha S, **Hazra S**, **Chanda A**, Das I, Das S (2020) Prediction of Monthly Hilsa (Tenulosailisha) Catch in the Northern Bay of Bengal using Bayesian Structural Time Series Model. *Regional Studies in Marine Science*, 39, 101456, <https://doi.org/10.1016/j.rsma.2020.101456>
- Hati JP, Samanta S, Chaube NR, Misra A, Giri S, Pramanick N, Gupta K, Datta Majumdar S, **Chanda A**, Mukhopadhyay A, **Hazra S** (2021) Mangrove classification using airborne hyperspectral AVIRIS-NG and comparing with other spacebornehyperspectral and multispectral data. *The Egyptian Journal of Remote Sensing and Space Sciences*, <https://doi.org/10.1016/j.ejrs.2020.10.002>
- Hati, JP, Goswami,S, Samanta,S, Pramanik, N, Chaube,N R, Misra, A, **Hazra,S.** (2020). Estimation of vegetation stress in the mangrove forest using AVIRIS-NG airborne hyperspectral data. *Model. Earth Syst. Environ.* <https://doi.org/10.1007/s40808-020-00916-5>
- Mallik, P. and **Ghosh, T.** (2021) Impact of surface-net solar radiation and soil temperature on tea production in India: a study of the Dooars region in West Bengal. *Regional Environmental Change*, Springer, 21:119. <https://doi.org/10.1007/s10113-021-01844-5>
- Mallik, P. and **Ghosh, T.** (2021) Impact of climate on tea production: a study of the Dooars region in India. *Theoretical and Applied Climatology*, Springer. <https://doi.org/10.1007/s00704-021-03848-x>
- Marcinko, C.L.J., Nicholls, R.J., Daw, T.M.; **Hazra, S.**; Hutton, C.W et al. (2021). The Development of a Framework for the Integrated Assessment of SDG Trade-Offs in the Sundarban Biosphere Reserve. *Water*, 13, 528.<https://doi.org/10.3390/w13040528>
- Moorhouse, H., Lucy R. Roberts, (et. al.) Suzanne McGowan, Virginia N. Panizzo, Philip Barker, **Ghosh, T.**, Christopher Hackney, Jorge Salgado, Andrew C. G. Henderson, Andy R. G. Large. (2021) Tropical Asian mega-delta ponds: Important and threatened socio-ecological systems. *Geo: Geography and Environment*. <https://doi.org/10.1002/geo2.103>
- Mukhopadhyay A, Giri S, **Hazra S**, Das S, **Chanda A** (2020) Influence of Oceanographic Variability on the Life Cycle and Spawning Period of *Sardinellafimbriata* in the Northern Part of Bay of Bengal. *Proceedings of the Zoological Society*, DOI 10.1007/s12595-019-00314-5
- Nath A. ,Samanta S.,Banerjee S.,Danda A., **Hazra S.** (2021) Threat of arsenic contamination, salinity and water pollution in agricultural practices of Sundarban Delta, India, and mitigation strategies . *SN Applied Science*,) 3:560 Springer Nature Journal. <https://doi.org/10.1007/s42452-021-04544-1>
- Paul Choudhury, C., **Chanda, A.**, Das, S. and **Ghosh, T.** (2021) Geochemical Dynamics of Heavy Metals in the Sediments of Hooghly-Matla Estuary – A Review. *International Journal of Advanced Research in Engineering and Technology (IJARET)* Volume 12, Issue 4, DOI: 10.34218/IJARET.12.4.2021.036
- Roy S, **Hazra S**, **Chanda A**, Das S (2020) Assessment of groundwater potential zones using multi-criteria decision-making technique: a micro–level case study from red and lateritic zone (RLZ) of West Bengal, India. *Sustainable Water Resources Management* 6:4
- Shaher S, **Chanda A**, Das S, Das I, Giri S, Samanta S, **Hazra S**, Mukherjee AD(2020)Summer methane emissions from sewage water–fed tropical shallow aquaculture ponds characterized by different water depths. *Environmental Science and Pollution Research*,27:18182–18195,<https://doi.org/10.1007/s11356-020-082960>
- Szaboova, L., Safra de Campos, R., Adger, W. N., Abu, M., Codjoe, S. N. A., Franco Gavonel, M., Das, S., ... & **Hazra, S.** (2021). Urban sustainability and the subjective well-being of migrants: The role of risks, place attachment, and aspirations. *Population, Space and Place*, <https://doi.org/10.1002/psp.2505>

## Annual Report 2020-2021

Soren, R (2020) Women in wildlife ecology and conservation science – Hypatia and Beyond in Women and Education in India: A representative study. IQAC, Jogamaya Devi College, Kolkata. ISBN 978-81-938290-35

Saha, S, Soren R (2020) Community perception of Ecosystem Services provided by water birds with changing landscape of East Kolkata Wetland. Journal Of Women's Christian College, Kolkata, 1 (1), 2020.

Soren, R. Mapping the Borders: Evolving Script Politics among Santali speakers in Eastern India In Book History of India. Eds. Swapan Chakravorty and Abhijit Gupta (Accepted for Publication on July, 2020)

Soren, R (2020) Mapping Traditional Santali Songs: An insight into the indigenous community perception In Anthology on Digital humanities (Accepted for publication in 2020)

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

Akhand A, **Chanda A**, Das S (2021) Multiple Facets of Aquatic Pollution in the Estuarine and Continental Shelf Waters Along the East Coast of India. In: Das S., Ghosh T. (eds) Estuarine Biogeochemical Dynamics of the East Coast of India. Springer, Cham. [https://doi.org/10.1007/978-3-030-68980-3\\_10](https://doi.org/10.1007/978-3-030-68980-3_10)

Basu S, **Chanda A**, Das S, Bhattacharyya S (2021) Persistent Organic Pollutants in the Coastal and Estuarine Regions Adjoining the Indian Periphery of the Bay of Bengal. In: Das S., Ghosh T. (eds) Estuarine Biogeochemical Dynamics of the East Coast of India. Springer, Cham. [https://doi.org/10.1007/978-3-030-68980-3\\_7](https://doi.org/10.1007/978-3-030-68980-3_7)

Das, S. and **Ghosh, T.** (2021) An overview of Biogeochemical Cycle of Estuarine System (2021). In Estuarine Biogeochemical Dynamics of the East Coast of India Ed. Sourav Das and Tuhin Ghosh, Springer Nature Switzerland. ISBN: 978-3-030-68980-3. DOI: <https://doi.org/10.1007/978-3-030-68980-3>

Ghosh T, Roy S, Hazra S (2021) Estimating water resources in Wokha, Nagaland using Geoinformatics , Water Resources of North Eastern and Eastern India : Status Issues and Strategies (Ed Ghosh S.) Geological society of India. <http://dx.doi.org/10.17491/cgsi%2F2021%2F165858>

Ghosh, A., Mukhopadhyay, A., Pramanick, N., Biswas, S., Mitra, D. and **Ghosh, T.** (2021) Interannual and intraannual comparative study of sea surface temperature distribution over the Bay of Bengal, the Arabian Sea, and the Mediterranean Sea within the time frame of 2003–18. In book: Disaster Resilience and Sustainability. DOI: 10.1016/B978-0-323-85195-4.00023-8

**Hazra, S.**, Patel, A., Das, S., Hans, A., Ghosh, A., & Giri, J. (2021). Women-headed households, migration and adaptation to climate change in the Mahanadi Delta, India. Engendering Climate Change, Routledge India.

Henderson, A. C. G., Das, S., **Ghosh, T.**, Panizzo, V. N., Moorhouse, H. L., Roberts, L. R., Walton, R. E., Zheng, Y., Bass, A. M. and McGowan, S. (2021) The Indian Sundarbans: Biogeochemical Dynamics and Anthropogenic Impacts. In Estuarine Biogeochemical Dynamics of the East Coast of India Ed. Sourav Das and Tuhin Ghosh, Springer Nature Switzerland. ISBN: 978-3-030-68980-3. DOI: <https://doi.org/10.1007/978-3-030-68980-3>

Nicholls, R. J., Adger, W. N., Hutton, C. W., Hanson, S. E., Lázár, A. N., Vincent, K., Allen A., Tompkin E.L., Arto I., **Hazra, S.**, Codje S.N. A. (2020). Sustainable Deltas in the Anthropocene. In Deltas in the Anthropocene (pp. 247-279). Palgrave Macmillan, Cham

Pattanaik S., **Chanda A.**, Mohapatra P.K. (2021) Aquatic Biogeochemistry of the Estuarine and Coastal Waters of the Bay of Bengal: Impact of Physical Forcing and Extreme Atmospheric Events.

## Annual Report 2020-2021

In: Das S., Ghosh T. (eds) Estuarine Biogeochemical Dynamics of the East Coast of India. Springer, Cham. [https://doi.org/10.1007/978-3-030-68980-3\\_3](https://doi.org/10.1007/978-3-030-68980-3_3)

R. Hajra, A. Ghosh, and **T. Ghosh** (2021) Micro Level Vulnerability Assessment of Estuarine Islands: A Case Study from Indian Sundarban. Springer Nature Switzerland AG 2021 M. Babel et al. (eds.), Water Security in Asia, Springer Water, [https://doi.org/10.1007/978-3-319-54612-4\\_11](https://doi.org/10.1007/978-3-319-54612-4_11)

Swain S, Das DK, Seal A, **Chanda A**, Das S (2021) Characterizing the Human Health Risk Along with the Bioaccumulation of Heavy Metals in the Aquatic Biota in the East Coastal Waters of the Indian Peninsula. In: Das S, Ghosh T (eds) Estuarine Biogeochemical Dynamics of the East Coast of India. Springer, Cham. [https://doi.org/10.1007/978-3-030-68980-3\\_8](https://doi.org/10.1007/978-3-030-68980-3_8)

### Blog:

Gosaba in lockdown: <https://livingdeltas.org/blog/project-two-8mkcd>

### Case studies:

Water Quality for Sustainable Development: <https://livingdeltas.org/case-studies/project-six-n739y-sdtk4>

Publications by adjunct fellows: (**Dr.Somnath Hazra**)

Bharadwaj, R., Hazra, S., Reddy, M., Das, S., Kaur, D. (2021). *Connecting the dots: climate change, migration and social protection*. IIED, London

Link: <https://pubs.iied.org/20591iied>

Bharadwaj, R., Bishop, D., Hazra, S., Pufaa, E., Kofi Annan, J. (2021). *Climate-induced migration and modern slavery: a toolkit for policymakers*. IIED, London and Anti-Slavery International, London Link: <https://pubs.iied.org/20441g>

Bharadwaj, R., Carthy, A., Abhilashi, R., Hazra, S., Chakravarti, D. (2021). *Climate change, migration and vulnerability to trafficking*. IIED, London

Link: <https://pubs.iied.org/20581iied>

Hazra S., Bhattacharya R. (2022) Valuation of Pond Ecosystem Services of Indian Sundarbans: A Methodological Approach. In: Das S., Chanda A., Ghosh T. (eds) Pond Ecosystems of the Indian Sundarbans. Water Science and Technology Library, vol 112. Springer, Cham. <https://doi.org/10.1007/978-3-030-86786-79>

Banerjee, S., Hazra, S., Khan, M.A. et al. Investigating India's pollution-intensive 'dirty' trade specialisation: analysis with 'revealed symmetric comparative advantage' index. Environ SciPollut Res 28, 30153–30167 (2021). <https://doi.org/10.1007/s11356-021-12790-4>

Ghosh T. and Hazra S. (2020) Ocean and Sustainable Development: A Preliminary Assessment for India. In: Hazra S., Bhukta A. (eds) Sustainable Development Goals. Sustainable Development Goals Series. Springer, Cham. [https://doi.org/10.1007/978-3-030-42488-6\\_14](https://doi.org/10.1007/978-3-030-42488-6_14)

Book (Published):

1. Sustainable Development Goals: An Indian Perspective (Edited), Published by Springer Nature, Netherlands, 2020

### Book Review:

Asian Development Bank Institute (ADBI), Organisation for Economic Co-operation and Development (OECD), and International Labour Organization (ILO), Innovative Approaches for the Management of Labor Migration in Asia. Volume: 3 issue: 1, page(s): 96-98, April 1, 2021

**Annual Report 2020-2021**

**H. Research Collaboration with other Departments/Institutes/Industries:**

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
<b>Prof. Tuhin Ghosh</b>	Prof. FunmiOlonisakin Vice-Principal & Vice-President	KING'S COLLEGE LONDON, UK	Scholarly interaction, cultural interchange, co-operative research and other forms of academic collaboration as well as possible student and staff exchanges	Open ended

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:**

**A. Books/Monographs Published:**

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
<b>Prof. Tuhin Ghosh</b>	Estuarine Biogeochemical Dynamics of the East Coast of India	Springer, Cham	978-3-030-68982-7	2021

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Two-days International seminar titled 'ReVisitingHul - The Santal rebellion of 1855'	Dr. Rahi Soren		School of Cultural Texts and Records, Jadavpur University	29-30 June, 2020

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Dr. Abhra Chanda</b>	Delivering a talk	'Blue carbon dynamics of the Indian Sundarban'	Eminent College of Pharmaceutical Technology	2 hours
<b>Dr. Sugata Hazra</b>	Invited lecture	India Russia Scientific Webinar on Blue Economy	Ministry of External Affairs, Moscow	20 Mins
	Invited lecture	CESSTAP short Course,	Indian Institute of Remote Sensing ,india	90 minutes
<b>Dr. Rahi Soren</b>	Invited Lecture	People's Biodiversity Register certificate	MoEF, ENVIS Resource	1 day

**Annual Report 2020-2021**

		course under Green Skill Development Programme (GSDP).	Partner, University of Kalyani, Nadia, West Bengal	
<b>Dr. Rahi Soren</b>	Invited Lecture	‘Resources, Climate Action and Conservation’	Department of Zoology, Cooch Behar Panchanan Barma University	3 days
<b>Dr. Rahi Soren</b>	Chaired session	‘ReVisitingHul - The Santal rebellion of 1855’	School of Cultural Texts and Records, Jadavpur University	2 days
<b>Dr. Rahi Soren</b>	Chaired session	Reimagining Santal Heritage through Oral History’	6 <sup>th</sup> Annual Conference ‘Crisis, Community and Oral History’	1 day
<b>Dr. Rahi Soren</b>	Chaired session	Narratives of Faith: Devotional Songs and Poetry of Multicultural Societies of Bengal’	Department of English, Jadavpur University	1 day
<b>Prof. Tuhin Ghosh</b>	Moderator	Locally led adaptation for climate change resilience in Asian mega-deltas	COP26 Glasgow	1 day
<b>Prof. Tuhin Ghosh</b>	Panelist	Delta Resilience and Risk Governance Expert Forum’ for GBM India scheduled on 28 October, 2021 (16.00 - 17.30 pm).	UKRI-GCRF and AIT-Bangkok	1 day
<b>Prof. Tuhin Ghosh</b>	Panelist	2 <sup>nd</sup> International Symposium on Disaster Resilience and Sustainable Development	AIT-Bangkok	1 day
<b>Prof. Tuhin Ghosh</b>	Key Note Speaker	2nd International Conference on Geology and Earth Sciences (ICGES 2021)	Singapore (Virtual)	3 days

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Rahi Soren</b>	Crisis, Community and Oral History’, Debontingun Adivasibirhor’ –	6 <sup>th</sup> Annual Conference of Oral History Association of India		



## Annual Report 2020-2021

	Remembering the SantalHul through Song Narratives			
<b>Dr. Rahi Soren</b>	‘Narratives of Faith: Devotional Songs and Poetry of Multicultural Societies of Bengal’	The Evolving Politics of Identity in Santali ritual songs - the case of DasaeDaranon	Department of English, Jadavpur University	

### H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Rahi Soren</b>	Online certificate course on ‘Folklore and Intangible Cultural Heritage’	Indira Gandhi National Centre for the Arts, Ministry of Culture, New Delhi	03 August to 19 October, 2020
<b>Dr. Rahi Soren</b>	3rd Short Term Course in MOOCs & e-Content Development	UGC-HRDC Jwaharlal Nehru University	24 to 29 August, 2020
<b>Dr. Rahi Soren</b>	Introductory course in Molecular Phylogenetics, BIOLOGIA: Life Science		16 to 19 February, 2021
<b>Dr. Rahi Soren</b>	International Level Online Faculty Development Programme (FDP) On Gender Sensitization	The Women's Cell and the Department of English, BarabazarBikramTudu Memorial College, Purulia, West Bengal, India	25 to 31 July, 2020

### 6. Major Achievements of the School during the year:

#### A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Prof. Tuhin Ghosh</b>	Lead Author (LA) for the Urban Climate Science Element in the Third Assessment Report on Climate Change and Cities (ARC3.3)	Urban Climate Change Research Network (UCCRN)	Earth Institute, Columbia University, USA

## Annual Report 2020-2021

### STUDIES IN ENVIRONMENTAL RADIATION AND ARCHAEOLOGICAL SCIENCES

Phone: 033-2414-6666/ 033-2457-2427

Director: Prof. Argha Deb

E-mail: argha\_deb@yahoo.com

#### 1. Vision and Mission of the School:

##### A. Vision:

Radioactive radiation is most hazardous to human health as it has the potential to cause fatal disease like cancer. Hence it is important to assess the radiation exposure due to environmental radioactivity present everywhere including soil, water, air, food, building materials etc. Keeping this in mind the school has the following vision

- To monitor environmental radioactivity in different matrices
- To assess health hazards expected to be caused by environmental radioactivity
- To create awareness among the common people and the local authority regarding the environmental radioactivity existing in a particular area
- To propose possible remediation measures
- To utilize the knowledge of environmental radioactivity for the benefit of mankind
- To promote interdisciplinary research in this field
- To enthuse young people for pursuing research in the field of environmental radioactivity

##### B. Mission:

Save society from the adverse effects of environmental radioactivity – use radioactivity for the benefit of mankind.

#### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
5		1	6
			No permanent faculty member of the school

#### 4. Research Activities:

##### A. Areas of Research Activities:(Broad Areas)

- i. Study on alpha radioactivity in natural media
- ii. Real time radon monitoring in air, water, soil for seismic surveillance
- iii. Studies on Radiation resistant microbes

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No.,Page No./Article No., Year of publication)

1. Mitali Mondal, Joyati Mondal, Somnath Kar, Argha Deb and Premomoy Ghosh, Forward-backward multiplicity and momentum correlations in pp collisions at LHC energies, *Physical Review D* 102, 014033, 2020
2. Tilak Nayak, Debjit De, Parimal Karmakar, Argha Deb and Paltu Kumar Dhal, Microbial Communities of the Drinking Water with Gradient Radon Concentration Are Primarily Contributed by Radon and Heavy Metal Content, *Frontiers in Environmental Science* 9: 576400 (2021): DOI: 10.3389/fenvs.2021.576400
3. Das, B. and Deb, A. (2021). Theoretical evaluation of calibration factor for CR-39 track detector for alpha radioactivity measurement in natural water. *Radiation Physics and Chemistry*. **185**: 109511. <https://doi.org/10.1016/j.radphyschem.2021.109511>.

**Annual Report 2020-2021**

**H. Research Collaboration with other Departments/Institutes/Industries:**

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Argha Deb	Md. Nurujjaman	N.I.T. Sikkim	Development of Network Monitoring Station	5 years
Argha Deb	Dipok Bora	Diphu Govt. College, Assam	Development of Network Monitoring Station	5 years
Argha Deb	Sibaji Raha	Bose Institute, Kolkata	Environmental Radioactivity Studies	5 years

**5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:**

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Argha Deb	Invited Lecture	National Science Day Celebration Webinar	Sarat Centenary College Dhaniakhali, Hooghly, WB	One Day (28 February, 2021)

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Saheli Chowdhury (A. Deb)	Soil radon as Earthquake Precursor studied at a Network of Monitoring Stations in the Eastern Himalayas and the Bakreswar-Tantloi Geothermal Region of Eastern India	Sedimentation, Tectonics and Metallogeny of North-East India	North-Eastern Hill University, Shillong	21-23 September, 2020
Saheli Chowdhury (A. Deb)	Soil radon monitoring for earthquake precursor study by networking approach in eastern India	Radiation Awareness and Detection in Natural Environment (RADNET-III)	Govt. PG College, Tehri Garhwal, and HNB Garhwal University Uttarakhand.	18-20 March, 2021

## Annual Report 2020-2021

### WATER RESOURCES ENGINEERING

Phone : 033-2457-2485

033-2414-6161

Director : Prof. Asis Mazumdar

E-mail : [dir.waterresource@jadavpuruniversity.in](mailto:dir.waterresource@jadavpuruniversity.in)

#### 1. Vision and Mission of the School:

##### A. Vision:

Centre for Water Resources Engineering started functioning as an interdisciplinary group in R&D activities in June, 1983 after the appointment of a Professor of Water Resources Engineering and has been evolved into a School in 1987 with a vision of establishing formal education at post graduate, doctoral and post-doctoral level to cater the need of the qualified manpower, research and development in the field of water resources engineering and management.

##### B. Mission:

School of Water Resources Engineering, Jadavpur University has been catering the needs of manpower training, formal education at post graduate level for GATE scholars (day ME course) and for in service engineers (evening ME course), core analytical and experimental research, application research in the field, consultancy services to industry and service sectors in the various aspects of Water Resources Engineering & Management.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
4 Semester M.E. (Water Resources and Hydraulic Engineering)	Postgraduate	1 <sup>st</sup> year	23 per year
		2 <sup>nd</sup> year ...	[GATE: 18 + Sponsored: 5]
6 Semester M.E. (Water Resources and Hydraulic Engineering)	Postgraduate		23 per year [18 Self Sponsored + 5 Sponsored]
Ph. D (Engineering /Science)	Doctoral		12

#### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
02 Professor+ (01) Emeritus Professor		(02) Assistant Professors (one vacant) + (02) Assistant Professors (Full time Contractual)	06

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

1. Development of Model for Arsenic Sludge Safe Disposal
2. Artificial Recharging of Aquifer
3. Limnological Study with special emphasis on Thermal Stratification in Turbulent Structure
4. Riverine Bank Stability Analysis
5. Soil Moisture Conservation
6. Soil Water Plant Relationship

## Annual Report 2020-2021

7. Surge Profiles for Water Intake Pump System of a Thermal Power Plant
8. Sedimentation Transport Mechanism
9. Fluvial Hydraulics
10. Impact of Forested Watershed on Stream Flow and Water Quality
11. Impact of Leaching from Municipal Solid Waste Dumping Station on an Urban Watershed
12. Pressure Transients Analysis in a Metro City Water Supply System
13. Simulation and Water Assessment of Indian River Basins with Distributed and Lumped Modeling
14. Artificial Neural Network Analysis (ANN) for Riverine and Channel Flow Systems
15. Groundwater Flow Simulation by Ground Water Modeling System (GMS) and in-situ Validation by Vertical Electrical Sounding (VES)
16. Development of Low Cost Model for Filtration Unit in a Rural Community
17. Impact of Climate Change on Water Resources
18. Urban Hydrology including Storm Drainage
19. Rainwater Harvesting
20. Irrigation and Drainage Development Plan
21. Sewer Transport System
22. River Basin Development
23. Wetland Management and Development
24. Investigation of Feasibility of Inland Water Transport
25. Development of Alternative Energy Sources, e.g., Tidal Power, Pump Storage Plants, Micro Hydel Plants etc.
26. Investigation of the Drinking Water Supply System.
27. Investigation of the Contamination of Groundwater Sources in West Bengal
28. Design and Development of Source and Water Intake System for Drinking Water Supply and Treatment Plant.
29. Development of Low Cost Potable Water Supply System
30. Watershed Management
31. Initiation of Benchmarking of Irrigation Projects for Performance Improvement
32. Study of Travel of Pollutant from on Site Sanitation Leach Pits

### B. Major Research Projects :

<b>Title of the Project</b>	<b>Type (Departmental / Individual)</b>	<b>Name of the Principal Investigator</b>	<b>Funding Agency</b>	<b>Duration</b>
Scientific Assessment of Coastal Vulnerability and Sustainable Ecosystem management under Climate Change Scenario	School of Water Resources Engineering	<b>Prof. Pankaj Kumar Roy</b>	Ministry of Science, Department of Science and Technology, NRDMS	3 Year
Study of Surface and sub-surface water flow and storage characteristics for creation of sustainable source on rain fed river in connection with comprehensive water security plan in rural West Bengal	School of Water Resources Engineering	<b>Prof. Asis Mazumdar &amp; Prof. Pankaj Kumar Roy</b>	RUSA 2.0 Jadavpur University Under MHRD, Govt. of India	1 Year
Development of Strategy for Sustainable Drinking Water Source Creation through Natural Recharge	School of Water Resources Engineering	<b>Prof. Pankaj Kumar Roy</b>	RUSA 2.0 Jadavpur University	1 Year

### Annual Report 2020-2021

for the Mitigation of Fluoride Contamination in Hydro-Geologically Critical Area of West Bengal			Under MHRD, Govt. of India	
Study To Develop Appropriate Methods For Safe Disposal of Arsenic-Rich Sludge	School of Water Resources Engineering	<b>Prof. Pankaj Kumar Roy</b>	DST (Govt. of West Bengal)	3 Year
Shifting of Sediments Towards Channel Bank by Enhancing Local Scour around Bridge Pier like Structures – A Green Dredging Technique	Individual	<b>PI: Dr. Subhasish Das</b>	JU-RUSA 2.0	2019-20
Study on impact of water harvesting structures created under CAMPA	Individual	<b>PI: Prof. Asis Mazumdar</b> <b>CI: Dr. Subhasish Das</b>	Forests, Environment and Climate Change Department, Govt. of Jharkhand	2018 – 20
Optimization of Biological Filtration Step in Multi Stage Filtration Process by Comparison of Sequential MAR Surface Infiltration Processes with Aerated Slow Sand Filtration	Individual	<b>PI- Prof. Dr. Asis Mazumdar</b>	RUSA 2.0 Jadavpur University Under MHRD, Govt. of India	2019-20
Shifting of Sediments Towards Channel Bank by Enhancing Local Scour around Bridge Pier like Structures – A Green Dredging Technique	Individual	<b>PI: Dr. Subhasish Das</b>	JU-RUSA 2.0	2019-20

#### C. Doctoral Research Activities

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
3	3

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

1. Souvik Chakraborty, Prabir Kumar Maity, Bernadette John, and **Subhasish Das\*** (2020). Overexploitation of Groundwater Causing Seawater Intrusion In The Coastal Aquifer of Egra in West Bengal. *Indian Journal of Environmental Protection*, Vol. 40, No. 4, pp. 413-423.

## Annual Report 2020-2021

2. Bernadette John, **Subhasish Das\*** and **Rajib Das** (2020). Effect of changing land use scenario in Kolkata Metropolitan on the variation in volume of runoff using multi-temporal satellite images, *Journal of the Indian Chemical Society*, Vol. 97, Issue 4, pp. 555-562.
3. Souvik Chakraborty, Bernadette John, **Subhasish Das\*** and Maity, P.K. (2020). Examining the extent of seawater intrusion from groundwater quality analysis at Purba Medinipur coast of India, *Journal of the Indian Chemical Society*, Vol. 97, Issue 4, pp. 587-594.
4. Prasun Mukherjee\*, **Subhasish Das** and **Asis Mazumdar** (2020). Evaluating volatility in quality indexing of saline water during tidal backwater incursion in Western Canals of South 24-Parganas, West Bengal, *Journal of the Indian Chemical Society*, Vol. 97, Issue 4, pp. 577-586.
5. Saikat Mondal\*, Sanchayan Mukherjee and **Subhasish Das** (2020). Experimental Study of Thermal Effect on Oscillating Hydraulic Jump. *Indian Science Cruiser*, Vol. 34, No. 4, pp. 15-19.
6. Asim Kuila, Biprodip Mukherjee, **Subhasish Das** and **Asis Mazumdar** (2020). Comparison of Flow Fields around a Horizontal Cylinder placed at Different Depths on the Water Channel. *Indian Science Cruiser*, Vol. 34, No. 4, pp. 44-50.
7. Souvik Chakraborty, Bernadette John, Prabir Kumar Maity and **Subhasish Das\*** (2020). Increasing Threat on Groundwater Reserves due to Seawater Intrusion in Contai Belt of West Bengal, *Journal of the Indian Chemical Society*, Vol. 97, Issue 5, pp. 799-817.
8. Souvik Chakraborty\* and **Subhasish Das** (2020). Analysis of Arsenic Content in Groundwater over the Years of Coastal Belt at Purba Medinipur in West Bengal. *Indian Science Cruiser*, Vol. 34, No. 6, pp. 22-30.
9. Kalyan Mahata, **Rajib Das**, **Subhasish Das** and Anasua Sarkar\* (2021). Land Use Land Cover map segmentation using Remote Sensing: A Case study of Ajoy river watershed, India. *Journal of Intelligent Systems*, Vol. 30, Issue 1, pp. 273-286.
10. Prasun Mukherjee, **Subhasish Das** and **Asis Mazumdar** (2021). Introducing winter rice cropping by using non-saline tidal water influx in western basins of South 24 Parganas, India. *Scientific Reports*, Vol. 11, Issue 1, Article number 553.
11. Souvik Chakraborty and **Subhasish Das\*** (2020). Assessment of Water Surface of Reservoirs with Varying Time and Increasing Population in Contai of West Bengal. *Reason – A Technical Journal*, Vol. XVIII, 2019, pp. 28-36.
12. Plaban Sen, Biprodip Mukherjee and **Subhasish Das\*** (2020). Stress Analysis of Smart Support for Process Pipeline Systems by CAESAR Software. *Journal of the Association of Engineers, India*, Vol. 90, No. 1&2, pp. 5-14.
13. Satabdi Saha, **Rajib Das**, Debasri Roy, (2021). “Assessment of impact of changing climate on performance of a system of reservoirs in India”, *Water and Energy International* (ISSN:09744207), Vol 63r (12), pp 22 – 30.
14. Deep Roy, **Subhasish Das**, **Rajib Das**, (2021). “Characterisation of B type hydraulic jump by experimental simulation and numerical modeling using MacCormack technique”, *Modeling Earth Systems and Environment* (ISSN: 2363-6203, E-ISSN:2363-6211), Vol 7(4), pp 2753 – 2768.
15. Satabdi Saha, Debasri Roy, **Rajib Das** (2020). “Simulation of the operation of Damodar Valley Corporation reservoir system in eastern India”. *Indian Science Cruiser* (ISSN: 0970-4256), Vol. 34, No. 1, pp. 53-58.
16. Sayan Pradhan, **Gourab Banerjee**, **Arunabha Majumder**, and **Asis Mazumdar** (2020). “Water quality assessment of lower Ganga river near Haldia applying water quality index method.”. *J. Indian Chem. Soc A*, Vol. 97, No. 12b, pp. 2777-2782.
17. Barsha Majumder, Susmita Das, Soumyajit Biswas, **Asis Mazumdar**, Asok K. Biswas (2020). "Differential responses of photosynthetic parameters and its influence on carbohydrate metabolism in some contrasting rice (*Oryza sativa* L.) genotypes under arsenate stress". *Ecotoxicology* Vol. 29, pp.912–93.
18. Debasish Biswas, Arijit Dutta, Sanchayan Mukherjee, **Asis Mazumdar** (2021). “Micro analysis of riverbank sediment stability under different wetted surface conditions”. *IOP Conference Series. Materials Science and Engineering*, Vol. 1080, No. 1, pp.1-5.

## Annual Report 2020-2021

19. M. Biswas Roy, A. Ghosh, A. Kumar, **Pankaj Kumar Roy**, Assessing the nature of seasonal meteorological change in people's dependency on wetland: a case study of Bhagirathi–Hooghly floodplain system, *Environment Development and Sustainability*, 23, 17881–17903, 2021
20. **Pankaj Kumar Roy**, M. Ghosh, Inactivation kinetics of gram-negative bacteria in the presence of residual free chlorine, *Desalination and Water Treatment* 210:222-230, 2021
21. V. Chakraborty, P. Das, **Pankaj Kumar Roy**, Lanthanum oxide–graphene oxide coated functionalized pyrolyzed biomass from sawdust and its application for dye removal present in solution, *Biomass Conversion and Biorefinery*, DOI: 10.1007/s13399-021-01507-9, 2021
22. M. Biswas Roy, M. Ghosh, **Pankaj Kumar Roy**, Desalination and Water Treatment Assessment of water quality of River Ganga during COVID-19 lockdown, *Desalination and Water Treatment*, 26-33, 2021
23. S. Halder, M. Biswas Roy, **Pankaj Kumar Roy**, Modelling soil erosion risk of a tropical plateau basin to identify priority areas for conservation, *Environmental Earth Sciences*, DOI: 10.1007/s12665-021-09941-8, 2021
24. N. Sadhan Mondal, P. Mondal, **Pankaj Kumar Roy**, A. Mazumdar & A. Majumder, Adsorption kinetics and isotherm modeling of arsenic removal from groundwater using electrocoagulation, *Journal of the Iranian Chemical Society*, DOI: 10.1007/s13738-021-02393-8, 2021
25. M. Biswas Roy, A. Ghosh, A. Kumar, **Pankaj Kumar Roy**, Study of water productivity model on wetlands: a case study of Bhagirathi–Hooghly sub-catchment basin, Southern West Bengal, India, *Environmental Monitoring and Assessment*, Vol no 193, 2021
26. S. Halder, M. Biswas Roy, **Pankaj Kumar Roy**, Tropical plateau basin prioritisation for sustainable groundwater management using classical algorithms, *Arabian Journal of Geoscience*, Vol no 14, 2021
27. A. Ghosh, M. Biswas Roy, **Pankaj Kumar Roy** & S. Mukherjee, Assessing the nature of sediment transport with bridge scour by 1D sediment transport model in the sub-catchment basin of Bhagirathi–Hooghly river. *Modeling Earth Systems and Environment*, *Modeling Earth Systems and Environment*, 1-23, 2021
28. V. Chakraborty, P. Das, **Pankaj Kumar Roy**, Graphene oxide–coated pyrolysed biochar from waste sawdust and its application for treatment of cadmium-containing solution: batch, fixed-bed column, regeneration, and mathematical modelling, *Biomass Conversion and Biorefinery*, DOI: 10.1007/s13399-020-01153-7, 2021
29. V. Chakraborty, P. Das, **Pankaj Kumar Roy**, Synthesis and application of various metal oxide–/biomaterial–coated carbonaceous nanomaterials derived from waste biomass for removal of Cr present in solution, *Biomass Conversion and Biorefinery*, 1-14, 2021
30. M. Biswas Roy, A. Ghosh, **Pankaj Kumar Roy**, Estimation and prediction of the oscillation pattern of meandering geometry in a sub-catchment basin of Bhagirathi–Hooghly river, West Bengal, India. *SN Applied Sciences*. 2. 10.1007/s42452-020-03275-z, 2020
31. S. Halder, M. Biswas Roy, **Pankaj Kumar Roy**, Fuzzy logic algorithm based analytic hierarchy process for delineation of groundwater potential zones in complex topography, *Arabian Journal of Geosciences*. 13. 10.1007/s12517-020-05525-1, 2020
32. C. Ray, **Pankaj Kumar Roy**, A. Majumdar, & M. Biswas Roy. Performance Analysis of Some Low-Cost and Locally Available Adsorbents that Remove Excess Fluoride Ion from Raw Water to Develop a Filter for the Rural Population. *Journal of The Institution of Engineers (India): Series E*. 101. 10.1007/s40034-020-00168-z, 2020
33. A. Pal, **Pankaj Kumar Roy**, Fuzzy Logic and Statistical Based Modelling to Predict Rural Solid Waste Generation of West Bengal. *International Journal of Innovative Technology and Exploring Engineering (IJITEE)*. 9, 44-49, 2020
34. S. Nag, M. Biswas Roy & **Pankaj Kumar Roy**. Optimum Prioritisation of Sub-watersheds based on Erosion Susceptible Zones through Modelling and GIS Techniques. *Modeling Earth Systems and Environment*. 10.1007/s40808-020-00768-z, 2020
35. N.S Mondal, S.K Basak, **Pankaj Kumar Roy**, A Majumder, A Mazumdar, Arsenic removal using electro-coagulation: suitable electrode selection, *Environment Asia*, 13(3): 13-25, 2020



## Annual Report 2020-2021

36. M. Pal, M. Biswas Roy, **Pankaj Kumar Roy**, Effect of Water Turbidity on the Seasonal Variation of Modeled Mixed Layer Depth- A Case Study of Dumboor Reservoir, Tripura, Journal of Scientific Research, 64(02):30-37, 2020

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Biprodip Mukherjee, **Subhasish Das\*** and Sankar Prasad Maity (2020). Optimum Process of Pipeline Selection in Water Distribution Network: Case Study. “Civil, Architectural, Structural and Constructional Engineering III” of the periodical “Applied Mechanics and Materials”, Vol. 897, pp. 137-141, Trans Tech Publications Ltd, Switzerland, ISSN: 1662-7482.
2. Asim Kuila\*, **Subhasish Das** and **Asis Mazumdar** (2019). A Comparative Analysis of Flow Fields around a Composite Hydrokinetic Device. “Civil, Architectural, Structural and Constructional Engineering III” of the periodical “Applied Mechanics and Materials”, Vol. 897, pp. 173-178, Trans Tech Publications Ltd, Switzerland, ISSN: 1662-7482.
3. Bernadette John\*, Priyanka Roy, **Subhasish Das** (2021). Analysing the Influence of Groundwater Exploitation on Its Quality in Kolkata. In: Kumar S., Kalamdhad A., Ghangrekar M. (eds) Sustainability in Environmental Engineering and Science. Lecture Notes in Civil Engineering, Vol. 93. Chap. 9, pp. 83-89. Springer, Singapore. Online ISBN 978-981-15-6887-9.
4. Asim Kuila, Hasanur Jaman, **Subhasish Das\*** and **Asis Mazumdar** (2020). Computing Equilibrium Flow Structures at Three Interfering Square Piers causing Relative Scour. In: Mandal J.K. (eds) Topics in Intelligent Computing and Industry Design (ICID), Vol. 2, Issue 1, pp. 20-24, Volkson Press, Malaysia, ISBN: 978-1-948012-16-4.
5. Sambaran Jana, Debasri Roy and **Subhasish Das\*** (2020). Assessment of Water Availability in a River Basin of India for Changing Climate. In: Mandal J.K. (eds) Topics in Intelligent Computing and Industry Design (ICID), Vol. 2, Issue 1, pp. 5-8, Volkson Press, Malaysia, ISBN: 978-1-948012-16-4.
6. Souvik Chakraborty and **Subhasish Das\*** (2020). Present Scenario of Groundwater Table in Saline Prone Areas of Purba Medinipur in West Bengal, India. In: Mandal J.K. (eds) Topics in Intelligent Computing and Industry Design (ICID), Vol. 2, Issue 1, pp. 9-13, Volkson Press, Malaysia, ISBN: 978-1-948012-16-4.
7. Asim Kuila\*, Biprodip Mukherjee and **Subhasish Das** (2021). Comparison of Vortex Induced Velocity Kinematics around Underwater Horizontal Cylinder with Vertical End Plate. *IOP Conference Series: Materials Science and Engineering*, Vol. 1080, Issue 1, Article No. 012048, ISSN: 1757-899X.
8. Satabdi Saha, Debasri Roy, **Rajib Das** (2021). “Simulation of Impact of Climate Change on the Performance of a Reservoir System in Eastern India”. In: Jha R., Singh V.P., Singh V., Roy L.B., Thendiyath R. (eds) Climate Change Impacts on Water Resources. Water Science and Technology Library, Vol. 98. Springer, Cham. DOI: 10.1007/978-3-030-64202-0\_41.
9. Nil Sadhan Mondal, **Pankaj Kumar Roy**, Asis Mazumdar, Arunabha Majumdar, Comparative Study of Arsenic Removal Using Different Coagulants, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
10. Mihir Pal, **Pankaj Kumar Roy**, Malabika Biswas Roy, Study of Gumti Wetland in Connection with Its Socio-Economic Status: A Step Towards Sustainable Management Practices, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
11. Swetasree Nag, Malabika Biswas Roy, Shuvoshri Bhattacharya, Souvik Mondal, **Pankaj Kumar Roy**, Assessment of Topographic Complexity Zone of a Drainage Basin Using Geographic Information System, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021

## Annual Report 2020-2021

12. Malabika Biswas Roy, Sudipa Halder, Arnab Ghosh, Snehamanju Basu, **Pankaj Kumar Roy**, Trend Analysis of Highly Cited Papers on Sustainable Watershed Management: A Bibliometric Review, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
13. Sudipa Halder, Malabika Biswas Roy, Shuvoshri Bhattacharya, Souvik Mondal, **Pankaj Kumar Roy**, Soil Loss Estimation for Sustainable Watershed Conservation in Semi-arid Bengal Basin, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
14. Vijoyeta Chakraborty, Papita Das, **Pankaj Kumar Roy**, Removal of Hexavalent Chromium by Carbonaceous Material Derived from Sawdust, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
15. Saurabh Kumar Basak, **Pankaj Kumar Roy**, Nil Sadhan Mondal, Arunabha Majumdar, **Asis Mazumdar**, A Critical Review of Various Arsenic and Iron Removal Plants Installed in North 24 Parganas District of West Bengal, India, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
16. Malabika Biswas Roy, Arnab Ghosh, Abhishek Kumar, **Pankaj Kumar Roy**, Trending Nature of Indian and Egyptian Independent Floodplain Research on River Ganga and Nile: A Bibliometric Analysis, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
17. Yuvaraj Mondal, **Pankaj Kumar Roy**, Arunabha Majumdar, Susanta Ray, Study of Groundwater Quality in a Part of North 24 Parganas, Under Gangetic West Bengal and Highlighting the Extent and Magnitude of Arsenic Contamination, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
18. Sanjib Das, **Pankaj Kumar Roy**, Gourab Banerjee, Asis Mazumdar, Water Quality Index Is an Important Tool of Groundwater: A Case Study, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
19. Shuvoshri Bhattacharya, Sudipa Halder, Swetasree Nag, **Pankaj Kumar Roy**, Malabika Biswas Roy, Assessment of Drought Using Multi-parameter Indices, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
20. Anshuman Pal, **Pankaj Kumar Roy**, An Overview of Construction Demolition Waste Management in India: Sustainable Approach, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
21. Rupam Sahu, **Pankaj Kumar Roy**, Characteristics of Precipitation in the Changing Climatic Scenario in India: A Critical Observation, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
22. Debanjana Chatterjee, Malabika Biswas Roy, **Pankaj Kumar Roy**, Reflection of Soil–Water Relationship Under Different Land Use Pattern: A Case Study of Neora River, West Bengal, India, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
23. Priyabrata Mondal, **Pankaj Kumar Roy**, Nil SADHAN Mondal, Saurabh Kumar Basak, Arunabha Majumdar, Development of Low-Cost Arsenic Removal Process by Using Ion-Exchange Resins, *Advances in Water Resources Management for Sustainable Use*, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
24. Pramita Deb Sarkar, **Pankaj Kumar Roy**, Deep Ranjan Pal, Malabika Biswas Roy, Feasibility Study on Energy Generation from Municipal Organic Waste Through Biogas Production, *Advances*

## Annual Report 2020-2021

- in Water Resources Management for Sustainable Use, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
25. Minakshi Ghosh, **Pankaj Kumar Roy**, Perspectives on Chemical Warfare and Emergence of Antibacterial Resistance in Water Environment, Advances in Water Resources Management for Sustainable Use, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
  26. Malabika Biswas Roy, Swetasree Nag, Arnab Ghosh, **Pankaj Kumar Roy**, Tri-Decadal Visualization Analysis on River Health Studies: A Global Perspective, Advances in Water Resources Management for Sustainable Use, Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal, Springer Singapore, 978-981-33-6411-0, 2021
  27. **Pankaj Kumar Roy**, Malabika Biswas Roy, Sritama Chatterjee, Sudipa Halder, Swetasree Nag, Arunabha Mazumdar, Land reclamation and reuse of waste water on the backdrop of urban sprawl of Kolkata metropolitan: a case study of East Kolkata, Wetland, India, Modern Cartography Series, Land Reclamation and Restoration Strategies for Sustainable Development 10:557-579
  28. Malabika Biswas Roy, Abhishek Kumar, **Pankaj Kumar Roy**, Evaluation of Water Quality Index of a Floodplain Wetland: A Case of West Bengal, India, Recent Trend in Indian Limnology and Fisheries Science Publisher: Today and Tomorrow's Printers and Publishers, New Delhi-110002

**F. Research Articles Published in Conference Proceedings during the year:  
(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)**

1. Bernadette John\* and **Subhasish Das** (2020). Role of Electrical Conductivity on Salinity and Mineralization due to Groundwater Level Fluctuations in Kolkata City, *IOP Conference Series: Earth and Environmental Science*, 2020 6th International Conference on Environment and Renewable Energy (ICERE 2020) organized by Hong Kong Chemical, Biological & Environmental Engineering Society at Hanoi, Vietnam, Vol. 505, Issue 1, Article No. 012021, ISSN: 1755-1315.
2. Buddhadev Nandi, **Subhasish Das\*** and Asis Mazumdar (2020). Experimental Analysis and Numerical Simulation of Hydraulic Jump, *IOP Conference Series: Earth and Environmental Science*, 2020 6th International Conference on Environment and Renewable Energy (ICERE 2020) organized by Hong Kong Chemical, Biological & Environmental Engineering Society at Hanoi, Vietnam, Vol. 505, Issue 1, Article No. 012024, ISSN: 1755-1315.
3. Prasun Mukherjee\*, Mantu Das, Biprodip Mukherjee, and **Subhasish Das** (2020). Optimization of Irrigation Design Technique for Pumping Units through Software Simulation Analysis for Varied Landscapes, *IOP Conference Series: Earth and Environmental Science*, 2020 6th International Conference on Environment and Renewable Energy (ICERE 2020) organized by Hong Kong Chemical, Biological & Environmental Engineering Society at Hanoi, Vietnam, Vol. 505, Issue 1, Article No. 012025, ISSN: 1755-1315.
4. Subhra Halder\*, Snehamanju Basu and **Subhasish Das** (2020). A Review on the Decadal Irrigation System of Shali Water Reservoir, *IOP Conference Series: Earth and Environmental Science*, 2020 6th International Conference on Environment and Renewable Energy (ICERE 2020) organized by Hong Kong Chemical, Biological & Environmental Engineering Society at Hanoi, Vietnam, Vol. 505, Issue 1, Article No. 012023, ISSN: 1755-1315.
5. Prasun Mukherjee\*, **Subhasish Das** and **Asis Mazumdar** (2020). Enhancement of Sustainable Irrigation Water Management Profile by Influx of Tidal Backwater in Western Basins of South 24 Parganas, West Bengal, India, Proceedings of the Second ASCE India Conference on "Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies" (CRSIDE2020) organized by ASCE India Section in association with IEST Shibpur, The Institution of Engineers (India) and AECOM at Kolkata, India, ISBN: 978-93-5396-500-6.
6. Asim Kuila\*, Biprodip Mukherjee, **Subhasish Das** and **Asis Mazumdar** (2020). Comparative Analysis of Flow Fields on the Proximity of a Horizontal Cylinder with a Vertical Plate Obstruction, Proceedings of the Second ASCE India Conference on "Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies" (CRSIDE2020) organized by ASCE India

## Annual Report 2020-2021

Section in association with IEST Shibpur, The Institution of Engineers (India) and AECOM at Kolkata, India, ISBN: 978-93-5396-500-6.

7. Buddhadev Nandi\*, **Subhasish Das** and **Asis Mazumdar** (2020). Time Variation Analysis of Scour around Eccentrically Placed Three Tandem Cylindrical Piers, Proceedings of the Second ASCE India Conference on “Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economies” (CRSIDE2020) organized by ASCE India Section in association with IEST Shibpur, The Institution of Engineers (India) and AECOM at Kolkata, India, ISBN: 978-93-5396-500-6.
8. Koushik Debnath\*, **Subhasish Das** and Biprodip Mukherjee (2020). Hydraulic Analysis of Drinking Water Distribution Network Using WaterCAD Simulation: Case of Purba Medinipur in West Bengal. National Conference on Advanced Modelling and Innovations in Water Resources Engineering, organized by Department of Civil Engineering, NIT Jamshedpur. ISBN 978-981-16-4629-4.
9. Biprodip Mukherjee\*, Prasun Das and **Subhasish Das** (2020). Comparison Model Study Using WaterGEMS and EPANET Software Programs for Clearwater Rising Main at Bhangar in West Bengal. National Conference on Advanced Modelling and Innovations in Water Resources Engineering, organized by Department of Civil Engineering, NIT Jamshedpur. ISBN 978-981-16-4629-4.
10. Priyanka Roy\*, **Subhasish Das**, Anupama Dey and **Rajib Das** (2020). Analytical Study of Scour Mechanism Around Immersed Rectangular Vane Structures. National Conference on Advanced Modelling and Innovations in Water Resources Engineering, organized by Department of Civil Engineering, NIT Jamshedpur. ISBN 978-981-16-4629-4.

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### B. Books/Monographs Edited :

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Pankaj Kumar Roy, Malabika Biswas Roy, Supriya pal	Advances in Water Resources Management for Sustainable Use	Springer Singapore	978-981-33-6411-0	2021

### 6. Major Achievements of the School during the year:

#### D. Any Other Major Achievements:

##### Prof. Dr. Asis Mazumdar

- Acted as Expert Committee member by Science and Engineering Research Board (a statutory body under the Department of Science and Technology, Government of India, established by an Act of the Parliament of India in 2009) for research project proposal evaluation.
- Delivered invited lecture on “**Hybrid Renewable Energy Systems and Waste to Energy The challenges and Sustainable Development**” – Phase III - (Small/Mini/Micro/Pico Hydro Projects)” under AICTE sponsored National Level STTP training program organized by New Horizon College of Engineering, Bangalore - 560103
- External Member of the Ph.D. Committee of the Department of Civil Engineering, BESUs, West Bengal.
- Expert of Common to all Ph.D Committees of Schools of Bengal Engineering & Science University, Shibpur and Department of Marine Science, University of Calcutta.
- Acted as a Panel Expert by the Union Public Service Commission for the Engineering Services Examinations to Recruiting Engineering Posts.
- Member, Arsenic Task Force, West Bengal.
- Member, National Executive Committee, Indian Plumbing Association.

## Annual Report 2020-2021

- Member of the Association of Gokhale Girls' School and College.
- Member of Arsenic Task Force, KMC.

### 8. Students Progression during the year:

#### B. Qualifying in State/ National/ International Level Examinations:

Name of the Examination	No. of students selected/ qualified
GATE	1

## WOMEN'S STUDIES

Phone: 033-2414-6531

033-2457-2165

Director: Dr. Nandita Banerjee Dhawan

E-mail: director.sws@jadavpuruniversity.in

swsju@yahoo.com

### 1. Vision and Mission of the School:

#### A. Vision:

To use School's rich institutional experience of more than 30 years to inform university's contribution to gender justice at regional and national levels such that emancipatory knowledge formations can be related to social formations in building transformative imaginaries within and outside higher education.

#### B. Mission:

To excel in teaching, research, curriculum building and community engagement such that the School can continue to contribute effectively to the SDG 5 of promoting Gender Equality and Empowerment of Women by (i) building and disseminating knowledge in Women's Studies, (ii) strengthening evidence-based research, (iii) bringing together teaching, research and action for social change, and (iv) using feminist methodologies for attaining gender justice.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
M Phil	2	1 <sup>st</sup> year (2020-22)	16
		2 <sup>nd</sup> year (2019-21)	17
General Elective (Paper I)	6 months	UG (semester 3)	37
General Elective (Paper II)	6 months	UG (semester 4)	44

### 3. Faculty Members in the School :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1	-	1	2

## Annual Report 2020-2021

Professor Aishika Chakraborty -- Professor  
Dr Nandita Banerjee Dhawan – Assistant Professor

### 4. Research Activities:

#### A. Areas of Research Activities:(Broad Areas)

We are conducting research programmes in the areas of ‘sustainable development’ and ‘studies in global south’ under the following broad rubrics:

- i. Archiving women’s histories
- ii. Culture, migration, identity
- iii. Sustainability in higher education
- iv. Domestic violence
- v. Gender and urban restructuring

#### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Memories, Cultures, Movements: Archiving Women’s Histories	Departmental	Professor Aishika Chakraborty	RUSA 2.0	1 year
Culture, Migration and Identity: The Barred World of Indian Dance	Individual	Professor Aishika Chakraborty	RUSA 2.0	1 year
Transformation towards Sustainability in Higher Education: Interactional Dynamics in Gender and Intersectionality	Individual	Dr. Nandita Banerjee Dhawan	RUSA 2.0	2 year

#### C. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the School
4	0

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals):

(Name of authors, Title of the article, *Name of the Journal*, Volume No.,Page No/Article No.,Year of publication)

Chakraborty, A. 2020. (Book Review)Anna Morcom, *Illicit Worlds of Indian Dance: Cultures of Exclusion*, *Indian Journal of Gender Studies*, Vol. 27, Issue 2, 16 Jun 2020, Vol 27, Issue 2, pp. 333-338. <https://doi.org/10.1177/0971521520910971>,

Dhawan, N.B. 2020. “BratyaBasu’s ‘The Final Night’: The (im)possibility of gender equality and religious plurality”, *Asian Journal of Women’s Studies*, Vol. 26, No. 3, pp.365-382. <https://doi.org/10.1080/12259276.2020.1820158>:

#### E. Research Articles Published in Edited Volumes during the year

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no.,Name of the Publisher, ISBN/ISSN No., Year)

## Annual Report 2020-2021

1. Chakraborty, Aishika. "Calcutta Choreographs: At Streets, Stages and Night Clubs", *Kolkata in Space, Time and Imagination: Rethinking of Heritage* edited by Anuradha Roy and Melitta Waligora, pp. 289-331, Primus, New Delhi, ISBN 978-93-89850-85-7, 2020.
2. Chakraborty, Aishika, "Dance of Dissent: Dancing Tagore in the Age of Nationalism", in *Women Speak Nation: Gender, Culture and Politics* edited by Panchali Ray, pp.93-110. (South Asian History and Culture) Routledge: New York, ISBN 978-0-367-89837-3, 2020.

### 5. Professional Activities by the Faculty Members / Research Scholars of the School during the year:

#### A. Books/Monographs Published :

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Aishika Chakraborty	Kolkatar cabaret: Bangali, Younataebang Miss Shefali	Gangchil	978-93-88380-76-8	2020

#### F. Invited Lectures Delivered/Sessions Chaired:

##### • AishikaChakraborty:

1. Invited talk at the National Seminar (Webinar), "Dance: Fluidity, Formality and Commodity", organized by **Kolkata Centre for Creativity**, 29 April 2020.
2. Invited lecture at a National conference on "Feminism and Performance", organized by **Malashree, an institute of Excellence in Cultural Pursuit**, 1 July 2020.
3. Resource person at an International Webinar Series on "Girl Interrupted: Trauma and Emancipation of Women", organized by Department of English, **Prasanta Chandra Mahalanabish College in association with IQAC and Women's Cell**. 13 July, 2020.
4. Invited talk at the International Seminar on Intangible Cultural Heritage and Gender, organized by **Sadhona, Dhaka, Bangladesh in collaboration with UNESCO**, 17 July, 2020.
5. Invited lecture at the International Seminar on "Arts in Education", organized by **National Council of Women in Indian Chamber of Commerce and Industry**, 27 July, 2020.
6. Invited speaker in the International seminar on "Labouring Dance, Labouring Performance: Interdisciplinary Conversations on Erotic Dancing in India," organized by **Dickson Poon School of Law, King's College London**, 5-6 August, 2020.
7. Invited panelist at the International Webinar on the sustainability of women artists in conversation with Maria Fernandes, Member of West Bengal Commission for Women, organized by Arts Leadership Council, **Women in Indian Chamber of Commerce** or WICCI, 21 September, 2020.
8. Invited Speaker in the National Seminar titled "Outdancing the Times: Conversations and Discoveries", organized by **Arts Forward and Sparsh Studio**, 27 September, 2020.
9. Invited Lecture in the International Webinar series ("*Kolkata Nishijapon: OuponibeshikSanskritirOpor-Uchhistho*"), organized by SUCHI, **Society for Understanding Culture and History in India**, 30 November, 2020.
10. Invited talk at a Departmental Webinar titled, "*Jadi kothao kul nahi pai tol pabo to tabu*", Organized by Department of Bengali, **Cotton University, Assam**, 2 January 2021.
11. Resource Person at the **Refresher Course** organized by Department of History, Jadavpur University on "Exploring the Urban: In Time and Space", 5 March, 2021.
12. Invited speaker ata conference to commemorate the international sex worker's day, organized by the **Manbhum Sanskriti O Nachni Unnayana Mancha** in association with **Durbar Mahila Unnayan Samiti**, Purulia, 6 March, 2021.
13. Invited speaker at an International seminar on "Intergenerational Conversations between Women Dancers of Calcutta", in celebration of Women's History Month, "A dance of my own", organized by **Pickle Factory Dance Foundation**, 25 March, 2021.

## Annual Report 2020-2021

Invited speaker at an International seminar on “Indian Dance and Dissent” organized by **Swarthmore College, USA in collaboration School of Media, Communication and Culture**, Jadavpur University 16-17 April, 2021.

### **Nandita Banerjee Dhawan**

Invited lecture delivered, “Gendered Realities of ‘world class sustainable cities’”, in Refresher Course organised by Department of History, Jadavpur University on “Exploring the Urban: In Time and Space”, 6 March, 2021.

Invited lecture delivered in Refresher Course in Women’s Studies on “Feminist Methodology: Theory and Practices”, organized by UGC-HRDC, University of North Bengal, 16 January, 2021.

### **G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Dhawan, N.B., Belluigi, D. Z. & Idahosa G. 2020. “Gender Equality in Indian Higher Education: Vision of Institutional Leadership”, *International Conference on Gender, Language and Education: Equality and Diversity Issues in Asia and Beyond*, The Education University of Hong Kong, Hong Kong, 2-4 December, 2020. <https://www.eduhk.hk/lml/icgle/schedule.php>;  
<https://www.eduhk.hk/lml/icgle/gallery.php>

Belluigi, D. Z., Dhawan, N.B. & Idahosa G. 2020. "Sustainability is based on the faith we have towards the work that we are doing": The conditions of academic citizenry in South Africa and India', *International Conference on Africa knows! It's time to decolonise our minds*, 2-4 December, 2020.

### **6. Major Achievements of the School during the year:**

#### **A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Aishika Chakraborty	Dr. Avabai Wadia Archive Fellowship (AWA Fellowship)	SNDT University,	Mumbai

#### **C. Awards received by Research Scholars/students:**

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Susmita Mondal	UGC-NET National Fellowship for Schedule Caste	Ministry of Education, Govt of India	
Rubina Sultana	UGC NET Maulana Azad National Fellowship for Minority Students	Ministry of Education, Govt of India	

#### **D. Any Other Major Achievements:**

Moumita Biswas, our M.Phil student, was selected for the post of Assistant Professor in Women's Studies, Diamond Harbour Women's University (Appointment Letter number DHWU/REG/WMS-03/2021) and joined on 02.02.2021

#### **Professor Aishika Chakraborty :**

- Member of National Council of **Women’s Indian Chamber of Commerce and Industry(WICCI)**
  - Life Member of Indian Association for Women’s Studies
  - Life Member of Indian History Congress
  - Member of Ph.D Committee, Women’s Studies Centre, University of Calcutta
  - Member of Ph.D Committee, Department of Dance, Rabindra Bharati University
- Member of the Editorial board of the book series:



## Annual Report 2020-2021

- *Drama, Theatre, Performance & Cultural Discourse in South Asia*, Book Series, Springer
- *Costume Politics: costumed bodies and identity politics*, Book Series, Bloomsbury Reviewer: Journal of the *South Asian History and Culture*, Taylor and Francis  
Academic Partnership:
- World Bank Project on Social Protection and Female Labor Force Participation among Socially Backward Classes, West Bengal
- **Co-curricular activities:**
- Talk show at **India Today** TV 23 March 2021  
<https://youtu.be/jl59OO2niBE>
- Performed in *Duhsomoyer Atmodarshan*, a collage of interdisciplinary performance arts, Presidency College Alumni Association, Calcutta, released on 13 November, 2020.
- Directed a Video documentary on  
**Miss Shefali, the Cabaret Queen of Calcutta** (as part of RUSA 2.0 Major Research Project)
- Compiled a Video documentary on  
**Memoires and Movements: Archiving Voices from Bangladesh** (as part of RUSA 2.0 Major Research Project)

### **Dr. Nandita Banerjee Dhawan**

- **Member of Ethics Committee**, Institute of Development Studies Kolkata, Kolkata, INDIA
- **External Member of Internal Complaints Committee** in two institutions – National Institute of Technology, Durgapur, and Ananda Mohan College, Kolkata.
- **Life Member of IAWS**

## **7. Extension Activities of the School during the year:**

### **A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

- SNTD University, Mumbai, on Dr. Avabai Wadia Archive Project

### **B. Activities for the Society:**

- The School organized a webinar titled, “Gender Equality Matters: Impacts of COVID-19 and Way Forward” on 8 March International Women’s Day 2021. The webinar helped us to connect locally, regionally and nationally with organisations such as CHILDLINE, Parichiti, South Kolkata HamariMuskan, Sanchar Arod, Ishwar Sankalpa. Sappho for Equality. The resource persons from these organisations shared their experiences of working with the grassroot members of the society in the difficult times of COVID. The webinar helped us to enlist the way forward for survival in such difficult times.
- The School celebrated the International Sex Workers’ Day organized by Durbar Mahila Sammnaya Samiti, a NGO run by the sex workers of Kolkata on 6 March, 2021. The programme included a festival of women folk performers in association with Manbhumi Sanskriti O Nachni Unnayan Samiti in Purulia (6-8 March, 2021).

## **8. Students Progression during the year:**

### **A. Progression to Higher Studies:**

<b>Number of students enrolled in higher education</b>	<b>Programmes graduated from</b>	<b>Programmes admitted to</b>	<b>Institutes admitted to</b>
Amrita Dasgupta	M.Phil in Women’s Studies	Ph.D	SOAS, University of London
Utsarjana Mutsuddi	M.Phil in Women’s Studies	Ph.D	BITS Pillani

### Annual Report 2020-2021

Runa Shyamal	MPhil in Women's Studies	Ph.D	Diamond Harbour Women's University
--------------	--------------------------	------	------------------------------------

**B. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
NET	2

**INTERDISCIPLINARY RESEARCH CENTRE**

## Annual Report 2020-2021

### AUROBINDO STUDIES

[Department of Philosophy]

Phone: 033-2457-2358/2638

Coordinator: Prof. Aparajita Mukhopadhyay

E-mail: aparajita.mukhopadhyay@jadavpuruniversity.in

#### **Vision and Mission:**

The goal of Jadavpur University is to implement a three-dimensional scheme of education combining humanities with scientific and technical education designed to incorporate with the best Indian ideals of life and thought, the best idea of the west. Jadavpur University took its shape in 1955 from the ideology of National Council of Bengal whose principal was Aurobindo Ghosh, later known as Sri Aurobindo, the philosopher, spiritual leader, poet of twentieth century. His remarkable contribution encouraged the Department of Philosophy, Jadavpur University to start a Centre for Sri Aurobindo Studies. The basic objective of this interdisciplinary centre was to acquaint the students, teachers and the general public with the thinking and activities of Sri Aurobindo and to compare his thought with other important thinkers and trends in India and the west. Sri Aurobindo's vision of human unity, reconciliation in the realm of thought and theory in the form of cultural synthesis were the main motivating forces behind the setting up this centre.

The Department of Philosophy has set up a Centre for Sri Aurobindo Studies under the UGC Program of Epoch Making Social Thinkers of India in the year 2005, which aims to highlight the various aspects of Sri Aurobindo's thoughts and their relevance to contemporary Indian society and culture. The Centre for Sri Aurobindo Studies has an intention to focus upon the holistic approach as it seeks to integrate the philosophic, literary, socio-political, yogic and various other aspects of his life and thought. The centre focuses upon Sri Aurobindo's wide sphere of thought, his Catholic, comprehensive but analytic approach and his outright secular outlook.

#### **Programme Organized:**

In collaboration with the department of Philosophy the Centre has organized a UGC sponsored seven-days E-Workshop on 'Mind, Consciousness and Harmony of Virtues' from 25 March to 31 March, 2021. Professor Indrani Sanyal, Professor of Philosophy delivered lectures in this Workshop.

Paper presentation (on philosophy of Sri Aurobindo)

Aparajita Mukhopadhyay, Coordinator of the Centre

Presented paper on *Significance of Life in Sri Aurobindo's Philosophy* in an ICPR sponsored State level Webinar organized by the New Alipore College, Kolkata on 21.03.21.

Presented paper on *Existenz, Theory of Becoming and Sri Aurobindo* in an ICPR sponsored Webinar organized by the Diamond Harbour University on 27.03.21.

#### **Other Activity:**

Centre runs a weekly study circle. Faculties of the department, teachers from other institutions, research scholars from different Universities are the members of this group.

## Annual Report 2020-2021

### BUDDHIST STUDIES

[Department of Philosophy]

Phone : 033-2457-2027

Coordinator : Prof. Madhumita Chattopadhyay

E-mail : madhumita.chattopadhyay@jadavpuruniversity.in

- A seven-day UGC sponsored Short Term Course entitled ‘Socio-Political Thoughts of Buddhism’ was organized by Centre for Buddhist Studies, Department of Philosophy, Jadavpur University from 13<sup>th</sup>-19<sup>th</sup> January, 2021. Teachers of various Colleges and Universities participated and was held in online mode. Eminent Teachers like Prof. Bimalendra Kumar, Prof. K.T.S. Sarao, Prof. Mahesh Deokar, Prof. Anand Singh, Prof. Aishwarya Biswas delivered lectures in the short term course.
- An online lecture series on ‘Buddhist Epistemology and its Development’ was organized by Centre for Buddhist Studies, Department of Philosophy, Jadavpur University on May, 2021. The lectures were held for four days and were delivered by Professor Madhumita Chattopadhyay and Dr. Maitreyee Datta.
- The second phase of the earlier held Lecture series on ‘Buddhist Epistemology and its Development’ was organized by Centre for Buddhist Studies, Department of Philosophy, Jadavpur University on August, 2021. The lectures were held for four days and were delivered by Professor Pradeep Prabhakar Gokhale, Professor Raghunath Ghosh and Professor Madhumita Chattopadhyay.

### CANADIAN STUDIES

[Department of Comparative Literature]

Phone: 033-2457-2152

033-2414-6690

Coordinator: Prof. Suchorita Chattopadhyay

Email: canadacentreju@gmail.com

#### 1. **Vision and Mission:**

- A. **Vision:** The Canadian Studies Program, which began in 2000 at Jadavpur University, subsequently developed into a Centre for Canadian Studies in 2007. The Centre is one of the nodal points related to research and study in Canadian Studies in India in general and in the Eastern Zone in particular. It has received national and international acclaim as it strives to disseminate an understanding of Canadian Studies and its reception within the Indian pedagogic system.
- B. **Mission:** Years of research and exploratory studies, academic interactions and collaborations with Canadianists in India and abroad, have been a tremendous learning experience for the scholars engaged with this Centre. Over the years, scholars and researchers have been exposed to diverse kinds of concepts and ideas, have stepped into areas hitherto untrodden and slowly evolved and emerged as a Centre with a definite focus and agenda. The Centre has identified two major areas as its focus: Canadian Aboriginal Studies and the South-Asian Canadian Diaspora. Faculty members and research scholars associated with CCS have a proactive approach to research methodology and skills in the field

## Annual Report 2020-2021

of Canadian Studies and the thrust areas of Aboriginal Studies and Diaspora Studies. In its focus, the Centre has aimed to move away from a reductionist, stereotypical application of race and class categories towards a multidimensional and multidisciplinary understanding grounded in the material and symbolic everyday life of the aboriginal and South Asian communities.

### 3. **Faculty Members in the Centre :**

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1	1		2

### 4. **Research Activities:**

#### A. **Areas of Research Activities :** (Broad Areas)

Aboriginal Canadian Studies  
Diasporic Canadian Studies

### 5. **Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

#### C. **Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/ Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
Global Education and the Humanities in the time of Covid 19: Challenges and Perspectives beyond Borders	Suchorita Chattopadhyay and Debashree Dattaray	NA	Online	9 – 10 February, 2021

#### F. **Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Suchorita Chattopadhyay</b>	Keynote address on “Comparative Literature and Translation Studies”	Refresher Course	(Online) Department of English, Guwahati University	12 November, 2020
<b>Suchorita Chattopadhyay</b>	Invited lecture on “The Relevance of Translation in Comparative Literature”	Refresher course on Literary Studies and the Question of Interdisciplinarity	(Online) Department of Comparative Literature, Jadavpur University	09 January, 2021
<b>Debashree Dattaray</b>	Panelist	Indigenous Studies and/in a Pandemic: A Conversation	(Online) Sidho Kanho Birsha University	19 August, 2020

### Annual Report 2020-2021

<b>Debashree Dattaray</b>	Invited talk on “Indigenous Communities and Covid 19: A Case of “Social Distancing”	Indigenous Communities and Covid 19: A Case of “Social Distancing	(Online) Littercrit	20 August, 2020
<b>Debashree Dattaray</b>	Panelist	Locating Indigeneity and Rearticulating Resilience: Karbi Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	07 September, 2020
<b>Debashree Dattaray</b>	Discussant	Indigenous Studies Today: Pedagogies and Dislocations	(Online) Centre for Karbi Studies, Diphu	23 September, 2020
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rearticulating Resilience: Santali Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24 September, 2020
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rearticulating Resilience: Bodo Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24 September, 2020
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rearticulating Resilience: Chhara Studies Today	(Online) Centre for Canadian Studies, Jadavpur University	24 September, 2020
<b>Debashree Dattaray</b>	Discussant	Locating Indigeneity and Rearticulating Resilience: Theory and Practice with Emerging Scholars Today	(Online) Centre for Canadian Studies, Jadavpur University	29 September, 2020
<b>Debashree Dattaray</b>	Invited Talk on “Indigenous Studies and Research Methodology in the Context of Karbi Studies”	One Month Orientation Programme on Karbi Studies (Online)	(Online) Centre for Karbi Studies, Diphu	31 October, 2020

## Annual Report 2020-2021

<b>Debashree Dattaray</b>	Invited Plenary Talk on “Archiving ‘Community’s voices’ in Karbi Anglong: Collective Memory and Digital Apprehensions”	International Conference (Online) on "Confronting the 'Global', Exploring the 'Local': Digital Apprehensions of Poetics and Indian Literature(s)" [Ministry of Education, SPARC supported]	Department of English, Jamia Millia Islamia, and Michigan State University, USA	21 & 22 December, 2020
<b>Debashree Dattaray</b>	Invited Talk on “Indigeneity and Covid: An Interface” as Resource Person	Refresher Course on “Literary Studies and the Question of Interdisciplinarity”	Department of Comparative Literature & UGC-HRDC, Jadavpur University	7 to 21 January 2021
<b>Debashree Dattaray</b>	Invited Talk on “Indigenizing Literature” as Resource Person	Refresher Course on “Literary Studies and the Question of Interdisciplinarity”	Department of Comparative Literature & UGC-HRDC, Jadavpur University	7 to 21 January, 2021
<b>Debashree Dattaray</b>	Invited Talk on “Indigenous Knowledge and Sustainability: A Story from the Okanagan”	CSGCM Lecture Series on “Many Facets of Sustainability”	(Online) Centre for Studies in Gender, Culture and Media, West Bengal State University	21 January, 20 21
<b>Debashree Dattaray</b>	Moderator for Keynote Address by Jeannette Armstrong on “A Syilx Perspective: Indigeneity and Resilience in These Times”	International Conference (online) on “Global Education and the Humanities in the time of Covid 19: Challenges and Perspectives beyond Borders”	(Online) Centre for Canadian Studies, Jadavpur University	09 & 10 February, 2021
<b>Debashree Dattaray</b>	Invited Talk on “Indigenous Literatures Today: A Story of Resilience” as Resource Person	Refresher Course on “Protean Wor(l)ds: Literary And Cultural Metamorphosis ”	Department of English & UGC-HRDC, Jadavpur University	13 March, 2021

### 6. Major Achievements of the Centre during the year:

#### D. Any Other Major Achievements:

**7 September 2020:** Due to the global pandemic, the centre sought to engage in academic exchanges through a series of lectures in online platforms. The first session of the series titled **Locating**



## Annual Report 2020-2021

**Indigeneity and Rearticulating Resilience** was on “Karbi Studies Today”. Dharamsing Teron ( Centre for Karbi Studies , Diphu), spoke on the practices and nuances of publishing in the field of Karbi Studies. Vulli Dhanaraju (Department of History, Assam University, Diphu) spoke on theorization of Karbi Studies, based on history, narratives and representations. Badan Tisso (Centre for Karbi Studies, Diphu) discussed at length about rediscovering the forgotten symbols emphasising on the story of Nothengpi. While Dr. Debashree Dattaray delivered her lecture on ‘Insider/Outsider Stories’, the session was moderated by Professor Suchorita Chattopadhyay.

**16 September 2020:** The second session of the series was on “Santali Studies Today”. Thakur Prasad Murmu (Department of Santali, Sidho Kanho Birsha University) spoke on the Santali beliefs of rituals and customs. Professor Sudip Bhui (Centre for Indigenous Studies, SKBU ) discussed at length about how indigenous knowledge can offer a way of survival to the community and certain aspects of survival as reflected in the community lore. Professor Palton Murmu (Department of Santali, SKBU) delivered his talk on “ Lifestyle of Santals: Past and Present scenario”. Professor Aparajita Hazra and Professor Nibedita Mukherjee (Department of English, SKBU) spoke on reinventing classrooms and the challenges of pedagogical practices in the ambit of indigeneity. Sunila Murmu ( SKBU) spoke on the festivals of Santal community and Sabiytiyeh Sakhi Murmu ( SKBU) spoke on the systems of internal administration and the way of representation of Santal community itself. The discussant was Dr. Debashree Dattaray and the moderator was Professor Suchorita Chattopadhyay.

**24 September, 2020:** The third session was on “Bodo Studies Today’. Professor Adaram Basumatary (Department of Bodo, Janata College, Kokrajhar) enlightened us on the background and development of Bodo Literature. Professor Anjali Daimari (Department of English, Gauhati University, Guwahati) delivered her lecture titled “In Search of ‘Her’ Voice: Reading in Context”. Professor Anil Boro (Department of Folklore Research, Gauhati University) spoke at length about the aspects of Bodo culture, locating indigeneity in Bodo and how resilience rearticulated in the context. Professor Aleendra Brahma (Centre for North-Eastern Language Development, Centre Institute of Indian languages, Mysore) lectured on “Resilience of Bodo : A Dowan (Patois) to a language”. Dr. Debashree Dattaray was the discussant and the session was moderated by Professor Suchorita Chattopadhyay.

**29 September 2020:** The fourth session was titled “Theory and Practice with Emerging Scholars”. Debjani Chakraborty ( Phd Scholar, Department of Comparative Literature, Jadavpur University) spoke on the practice of listening as an essential tool to grapple with the question of epistemic violence on the field. Dipanjan Kundu ( Ph.D Scholar, Department of English, SKBU) articulated on the politics of representation of indigeneity in Indian films and Popular culture. Krishnendu Pal ( Ph.D Scholar, Department of Comparative Literature, JU) delivered his talk, titled “To talk about Yourself and Your Own: Reading Ma-Nee Chacaby’s A Two-spirit Journey”. Dr. Debashree Dattaray was the discussant and the session was moderated by Professor Suchorita Chattopadhyay.

**4 October 2020:** “Chhara Studies Today” was the fifth session of this series. Madan Meena (Visual artist, Researchers and Honorary Director, Adivasi Academy, Gujrat) spoke on the criminalization of the warriors. Dakxinkumar Bajrange (Filmmaker, Playwright, Activist, Artistic Director, Budhan Theatre) spoke on how the community of Chhharas struggled and is struggling for their reclamation of indigenous identity. Kalpana Gaddekar (DNT Research Activist and Actor, Ahmedabad, Gujarat) discussed at length on the struggle stories of Chhara women. Dr. Dheeman Bhattacharya (Assistant Professor, Centre for Comparative Literature, Visva-Bharati, Santiniketan) delivered his lecture titled “The Lower Depths: Problems of Drafting Urban Historiography on the Chhara community”. Dr. Debashree Dattaray was the discussant and the session was moderated by Professor Suchorita Chattopadhyay.

**7 December 2020:** Diasporic displacement has often provoked mutations in subjectivity and identity. In the context of the Canadian Diaspora, authors such as Fred Wah, Joy Kogawa, Judy Fong Bates, Shauna Singh Baldwin, Michael Ondaatje, Shyam Selvadurai, Dionne Brand, Anita Rau Badami,

## Annual Report 2020-2021

Samra Habib, Rohinton Mistry, Shani Mootoo, Uma Parameswaran, to name a few, have often mediated dissonance in their oeuvre through fluid ethical, political and personal affiliations. Covid 19 in Canada has highlighted issues of poverty and limited health care within Indigenous communities and the Black Lives Matter movement from the United States has drawn attention to systemic racism in all realms of policy and justice in Canada. This year, therefore, marks an important moment to ensure that diasporic subjectivities create a rupture from essentialist have been deeply honoured to know that they are (and will be) remembered through attachment of their names to the best student papers in the respective field of research.

The two-days interactive and interdisciplinary conference ended with a vote of thanks from Krishnendu Pal, Research conceptualisations of identity, particularly within the theoretical matrix provided by migration and displacement. The Centre for Canadian Studies organized a conversation on diasporic subjectivities with Dr. Julie B. Mehta, Faculty, University of Toronto and Loreto College (Kolkata) and Aparna Sanyal, Indo- Canadian author, editor and journalist as part of a Webinar series on “*Diasporic Identities and Cultural Brokering*” on Monday, 7 December, 2020 at 4.30 pm.

**Report on International Conference on “Global Education and the Humanities in the time of Covid 19: Challenges and Perspective beyond Borders”, 9-10 February, 2021.**

A Two-Day International Online Conference on “Global Education and the Humanities in the time of Covid-19: Challenges and Perspective beyond Borders” was organised by the Centre for Canadian studies on 9-10th February 2021.

While the pandemic reshaped the dissemination of information and pedagogical approaches across the international borders, new avenues in global education have been inaugurated too. The coordinates of activism and priorities altered, and the oppression of patriarchy took a new form. Often the gendered relations and indigenous rights were redefined, while on the other hand agency and victimhood had been continually interrogated.

The Conference was conducted over thirteen academic sessions in the span of two days. It began with a welcome address by Professor Suchorita Chattopadhyay, Coordinator, Centre for Canadian Studies, Department of Comparative Literature, Jadavpur University. It was followed by an inaugural address by Professor Sujit Kumar Mandal, Head, Department of Comparative Literature, Jadavpur University. The keynote address was entitled “Speculative Solidarity: Painting an Indigenous-South Asian encounters as fact”, delivered by the renowned filmmaker and media artist, Ali Kazimi. He enlightened about continuous racial discrimination prevalent in Canada and how heinous crimes are pushed under the carpet. At length he discussed on the Komagata Maru incident, especially how a deliberate plan was charted out to not let the non-whites enter. How bioweapons had been used on the indigenous population of Canada and the later protests had been an area of discussion too. Another keynote address had been delivered by the eminent scholar and writer, Jeanette Armstrong (Okanagan), entitled “A Syilx Perspective: Indigeneity and Resilience in These Times”. She spoke at length about the indigenous faith on land, how the indigenous people believed in the healing power of the entire ecosystem, and the present policies to protect their land. She also discussed how the entire indigenous population have been reduced to half, thanks to the white power, and hence the projects had been initiated to scribe the oral indigenous history preserving their knowledge system.

In the following sessions, around twenty-three students and scholars presented and engaged in a critical intervention on the new dimensions of humanities, experienced by the communities in and across the borders. The discussions offered a deep insight into the irretrievable loss, grief and trauma that impacted the environmentalists, health care professionals, students, artists, educators, writers and media persons in these trying times. A multidisciplinary understanding of the global migration and displacement inaugurated avenues to explore and comment critically on the subjectivities and identities of the diasporic and indigenous population.

In the plenary sessions, Dr .Julie B Mehta delivered an eclectic lecture addressing devastating effect of pandemic on indigenous women. Dr. Dheeman Bhattacharya spoke on how the notions of land, labour, and capital in the indigenous communities of Canada and India had been reformulated during

## Annual Report 2020-2021

the pandemic, and how all of it contributed to a new paradigm of exploitations. Rahul Varma, the activist and artistic director of Teesri Duniya Theatre, spoke at length on the systematic racial and religious discrimination prevalent in Canada. Those discriminations twined with gendered oppression, and the devastating consequences especially during the pandemic had been systematically neglected without much interrogations. Subrata Kumar Das, the author, translator and member of Writers' Union of Canada and Literary Translators Association of Canada, spoke on the presences of the Bengalis in Canadian Literature. Sikata Banerjee presented on the effects of pandemic on gender and nation. Prabhjot Parmar presented a paper entitled "Solstice in Pandemic".

Since 2017, the Centre for Canadian Studies, JU has been awarding the Victor J. Ramraj Memorial Award for the best paper in Canadian Diaspora Studies and Renate Eigenbrod Memorial Award for the best paper in Indigenous Canadian Studies. These awards have been initiated by CCS with an aim to encourage the research endeavours of young scholars are being sponsored by Shastri Indo-Canadian Institute (India Office). All the papers were subject to blind peer review by an Inter-Institutional committee, which included a member nominated by SICI as well. This year's conference saw the fifth Victor J. Ramraj Memorial Prize being awarded to Suddhadeep Mukherjee (MA student, Department of Comparative Literature, Jadavpur University) for his paper titled "Departures, Destinies, Destinations: Listening to Mennonite Women Talk". The fifth Renate Eigenbrod Memorial Prize was won by Soumik Sengupta ( MPhil Student, Centre for Comparative Literature, University of Hyderabad) for his paper titled "Death, Disease and Discourse: Understanding Indigenous Canadian Experience Through a Close Reading of *Halfbreed* and *Ravensong*". Apart from the prize sponsored by SICI, the winners received messages on behalf of the late Dr. Victor J Ramraj and the late Dr. Renate Eigenbrod sent by Professor Ruby Ramraj (Department of English, University of Calgary, Canada), and Dr. Peter Kulchyski (Department of Native Studies, University of Manitoba, Canada) respectively, stating how the departed scholars would Scholar, Centre for Canadian Studies, Jadavpur University.

### 7. Extension Activities of the Centre during the year:

#### B. Activities for the Society:

In the past academic session, the Centre for Canadian Studies has played an active role in social media through its pages, especially in the context of a global pandemic. The page has attempted to not only discuss academic activities but has also attempted to work towards a constructive idea of self care through a discussion of mental health issues on the page with students, faculty members and activists across the globe.

Page details: 1. <https://www.facebook.com/ccsjucl/> and 2. <https://www.facebook.com/canada.centre.77>

## CLINICAL RESEARCH CENTRE (Department of Pharmaceutical Technology)

Phone: 033-2457-2048

Coordinator: Dr. Ketousetuo Kuotsu

E-mail: [ketoul@rediffmail.com](mailto:ketoul@rediffmail.com)

### 1. Vision and Mission of the Centre:

#### A. Vision:

All through the last few years, clinical research has emerged as an essential field in the health care system. It is now definite that therapeutic products must not only be efficacious but also be safe when administered. Therefore, before bringing a therapeutic product in the market for use, the product has

## Annual Report 2020-2021

to endure rigorous screening through toxicity, preclinical, different phases of clinical studies and pharmacovigilance. Pharmaceutical, health and medical products, where it is a small molecule, large molecule or botanical extract, are measured as ever mounting and unsaturated area of the health management in the present state of affairs. The establishment of safety and efficacy of the health product is of paramount importance, and this requires the generation of trained and highly skilled personnels. The clinical research is growing at an express phase and India has been recognized as an excellent for global clinical trials.

Consequently, there is a great need for clinical research professionals not only for in India but also internationally. This Clinical Research Centre (CRC) is the right platform to offer expertise, create a workforce for meeting requirement for the pharmaceutical industries which will bridge the current shortfall and also give a new impetus to strengthen the University - Industries partnership. This type of centre is inimitable and first of its kind in eastern India. The aim and objective of the centre is to facilitate both the quality and efficacy of clinical research activity. The centre has plans to explore the unexplored area, to enable the early clinical experience, to evaluate treatment effectiveness in an everyday clinical setting and post marketing pharmacovigilance. In the long run, CRC plans to become a centre of academic excellence.

**B. Mission:** To be a state of the art education platform in imparting courses in Clinical Research.

### 2. Academic Activities:

#### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Pharmacovigilance in clinical research	9-months	2020-2021	17

**3. Faculty Members in the Centre :** All faculties are guest faculties.

### 4. Research Activities:

#### A. Areas of Research Activities :(Broad Areas)

Doing advanced research in the field of Drug Development, phytomedicine helping in clinical study of drugs.

#### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Design, development and characterization of colon targeted oral anticancer drug delivery system, modulation with poly- l-lysine.	Departmental	Dr. Ketousetuo Kuotsu	RUSA	3 yrs

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

- Saumen Karan**, Souvik Debnath, **Ketousetuo Kuotsu**, Tapan Kumar Chatterjee, "In-vitro and in-vivo evaluation of polymeric microsphere formulation for colon targeted delivery of 5-fluorouracil using biocompatible natural gum katira", *Int. J. Biol. Macromol.* 158 (2020) 922–936.

**Annual Report 2020-2021**

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

<b>Name of the Seminar/Workshop/Conference/Symposium</b>	<b>Name of the Coordinator(s)/ Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
Relief Stress and Diseases by Yoga Therapy	1. Dr. Ketousetuo Kuotsu 2. Dr. Kanishka Sarkar 3. Dr. Saumen Karan	NO	Jadavpur University (webinar)	21 June, 2021

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Dr. Saumen Karan</b>	“Optimization and Evaluation Polymeric Microsphere Formulation for Colon Targeted Delivery of 5-Fluorouracil using Biocompatible Natural Gum Katira.”	The International Congress of Cancer and Clinical Oncology	Singapore	3-days

**6. Major Achievements of the Centre during the year:**

**C. Awards received by Research Scholars/students:**

<b>Name of the Research Scholar/ Student</b>	<b>Name of the Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Dr. Saumen Karan</b>	Best Researcher Award for the Contribution and Honorable Achievement in Innovative Research	Science Father	India

**7. Extension Activities of the Centre during the year:**

**B. Activities for the Society: Celebrated “The International Yoga-Day”**

## Annual Report 2020-2021

### COMPUTER AIDED DESIGN CENTRE

(Department of Computer Science & Engineering)

Phone: 033-2414-6844, 2457-2960

Director: Prof. Chiranjib Bhattacharjee

E-mail: cadcentre@cadcentreju.org

#### 1. Vision and Mission of the Centre:

- A. Vision:** We are driven to dig deeper to design comprehensive courses with updated industry-relevant curriculum, high-end infrastructure with fully-equipped laboratories to ensure that our students get job-ready for lucrative and satisfying careers with the technological advancement. We are ready to accept all challenges to remain the top most institute in the fields of CAD, Geoinformatics, Multimedia, and Computer Programming in the EasternIndia.
- B. Mission:** During mid 80's, the awareness in the field of CAD/CAM was at its infancy. Few educators and researchers with limited expertise in this specialised field were available and the situation in the industry was even worse. This dearth was rewarded by establishing nationwide four CAD Centres and the Eastern Regional Centre was decided to be housed at Jadavpur University. The main objective behind setting up this centre was creating awareness in the fields of CAD, CAM and CAE, eventually expanding to Geoinformatics/Multimedia/Computer Programming/Cyber Security; and promoting activities in these spectra by organizing workshops, short-term courses and through consultancies. The Centre has recently introduced Massive Open Online Courses (MOOCs) platform.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the course	Duration	No. of courses offered	Total no. of students
WebGIS Development using Open Layers	24 hrs	1	13
Design Mobile Apps	34 hrs	2	13
UI Design	34 hrs	1	10
2D Animation using Flash	44 hrs	1	6
3D Visualization with 3DS Max	48 hrs	1	4
Programming ArcGIS with Python	36 hrs	2	38
Analysis and Simulation of Urban Growth from RS Data	24 hrs	1	19
Blockchain Cryptographic Application with Python	40 hrs	1	4
AutoCAD	40 hrs	1	13
Computer Forensic	32 hrs	1	4
Computation with Python	42 hrs	2	19
Digital Graphics	50 hrs	2	12
Data Science with Python	40 hrs	3	45
Deep Learning with Tensorflow	32 hrs	1	3
Ethical Hacking with Python	42 hrs	2	5
Geospatial Technology	6 months	1	8
P.G. Diploma in Applied Geoinformatics	1 year	1	8
GNSS Surveying and Mapping with Android Phones	18 hrs	2	13
Diploma in Multimedia and Animation	24 hrs	2	16
Modern Web Design and Frontend Development	24 hrs	2	16
Network Security	32 hrs	2	4

## Annual Report 2020-2021

PHP with MySQL	30 hrs	1	6
Python for Machine Learning	36 hrs	1	18
Essentials of QGIS for Teachers and Research Scholars	30 hrs	2	20
RS application for Change Detection	24 hrs	2	13
SAR Image Processing with Open Source Software	18 hrs	2	21
STAAD	60 hrs	2	31
<b>Total</b>		<b>42</b>	<b>366</b>

### B. New Programme/Course introduced by the Centre during the year:

Course Name	Date of Introduction	No. of Students enrolled
WebGIS Development using Open Layers	16 July, 2020	13
Design Mobile Apps	08 February, 2021	13
UI Design	25 August, 2020	10
2D Animation using Flash	04 August, 2020	6
3D Visualization with 3DS Max	15 September, 2020	4
Programming ArcGIS with Python	10 August, 2020	38
Analysis and Simulation of Urban Growth from RS Data	01 February, 2021	19
Blockchain Cryptographic Application with Python	17 August, 2020	4
Computer Forensic	18 July, 2020	4
Computation with Python	19 September, 2020	19
Digital Graphics	06 August, 2020	12
Data Science with Python	16 August, 2020	45
Deep Learning with Tensorflow	29 September, 2020	3
Ethical Hacking with Python	17 August, 2020	5
GNSS Surveying and Mapping with Android Phones	05 August, 2021	13
Diploma in Multimedia and Animation	27 January, 2021	16
Modern Web Design and Frontend Development	03 August, 2020	16
Network Security	12 August, 2020	4
PHP with MySQL	13 August, 2020	6
Python for Machine Learning	25 July, 2020	18
Essentials of QGIS for Teachers and Research Scholars	10 August, 2020	20
RS application for Change Detection	13 August, 2020	13
SAR Image Processing with Open Source Software	17 July, 2020	21

### 3. Faculty Members in the Centre :

The Centre is conducting various professional short-term courses with the help of visiting faculties and engineers of the Centre.

### 4. Research Activities:

#### A. Areas of Research Activities : (Broad Areas) CAD and Geoinformatics

#### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

A Nath, B Koley, S Saraswati, B Bhatta, BC Ray, *Pertanika Journal of Science & Technology*, 29(1), 331–348, 2021

## Annual Report 2020-2021

### 5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:

#### A. Books/Monographs Published :

Name of the Author(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Basudeb Bhatta	Remote Sensing and GIS (3 <sup>rd</sup> Edition)	Oxford University Press (India)	9780199496648	2021
Basudeb Bhatta	Global Navigation Satellite Systems: New Technologies and Applications (2 <sup>nd</sup> Edition)	CRC Press	9780367474089	2021

### 6. Major Achievements of the Centre during the year:

#### D. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Basudeb Bhatta	Fellow	Nikhil Bharat Siksha Parishad	Kolkata

### 7. Extension Activities of the Centre during the year:

#### A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.

The Centre was associated as a Coordinator Institute with Indian Institute of Remote Sensing, ISRO, Dept. of Space, GOI in their OFF-CAMPUS OUTREACH CERTIFICATE PROGRAMMES the year 2020. This was the first association of the Centre with the ISRO.

## CONDENSED MATTER PHYSICS RESEARCH

[Department of Physics]

Phone : 033-2457-2448 / 2771

Coordinator: Prof. Brajadulal Chattopadhyay

E-mail : bdc\_physic@yahoo.co.in

#### 4. **Research Activities:** Condensed Matter Physics Research Center (CMPRC)

#### A. **Areas of Research Activities :** (Broad Areas)

Material Science, Bio-concrete Technology, Nano Technology, Fluid Dynamics etc, Toxicology.

#### D. **Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

1. A Roy, RAI Haque, A J Mitra, M Dutta Choudhury, S. Tarafdar, T Dutta. (2020). Understanding flow features in drying droplets. *Physics of Fluids*. 32: 123310 .



## Annual Report 2020-2021

2. Samanta, Anwasha; Chowdhury, Trinath; Chattopadhyay Brajadulal; Chattopadhyay, Krishna. (2021). Studies the therapeutic efficacy of nanocurcumin against nicotine induced damage of blood cells. International Journal of Pharmaceutical Research and Innovation.14: 12 - 26.
3. Saheli Banerjee, Tuhin Kanti Biswas, Krishna Chattopadhyay, Brajadulal Chattopadhyay. (2020). An Approach to Screen Genotoxic Susceptible Diabetic Population of various Prakriti Groups for Personalized Disease Management. Journal of Alternative and Complimentary Medicine.27(1):1-8.. doi.org/10.1089/acm.2020.0269

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
1. Euler Number and Binary Image: Speaker - Ms. Anamika Roy, Charuchandra College Kolkata	CMPRC	NIL	Webinar	04 August, 2020
2. Hirshfeld Surface Studies-gaining insight into the crystal packing and close contact interactions Speaker - Megha Sen Chowdhury, Amity University	CMPRC	NIL	Webinar	25 August, 2020
3.Evaporation of colloidal pendant drop under magnetic field ambience, Speaker - Dr Ankur Chattopadhyay, IISc Bangalore	CMPRC	NIL	Webinar	12September,2020
4. Bio-inspired Drying Droplets: A pre-diagnostic Technique? Speaker: Anusuya Pal, Worcester Polytechnic Institute, MA, USA	CMPRC	NIL	Webinar	07 October, 2020
5. Understanding the role of exchange and correlation in oxides under strain and oxide heterostructures,	CMPRC	NIL	Webinar	22 January, 2021

## Annual Report 2020-2021

Speaker - Dr Hrishit Banerjee, Institut fur Theoretische Physik, Petersgasse 16, 8010, Graz, Austria.  6. Music and Speech through Microscope: A Neuroscientific exploration. Speaker - Shankha Sanyal, Research Associate, School of Languages and Linguistics, Jadavpur University, Kolkata				
--	--	--	--	--

### COUNSELING SERVICES AND STUDIES IN SELF-DEVELOPMENT

[Department of Philosophy]

Phone : 033-2457-2481

Coordinator : Prof. Samar Kumar Mondal

Joint Coordinator : Prof. Sanjib Mridha

E-mail : ccssju@gmail.com

#### 1. Vision and Mission of the Centre:

##### A. Vision:

- Creating trained human resource for taking care of mental health of their peers and community members
- Creating and maintaining a mental health friendly campus
- Taking care of mental health of our students and their family members
- Taking care of mental health of University faculty members and their families
- Taking care of mental health of non-teaching staffs of our University and their family members
- Promoting awareness about positive mental health in the campus as well as in the community

##### B. Mission:

To promote positive mental health both within University campus as well as in the community.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Counselling and Stress Management	2 year	1 <sup>st</sup> year	22
		2 <sup>nd</sup> year ...	30

## Annual Report 2020-2021

### B. **New Programme/Course introduced during the year by the Centre:**

Programme Name	Course Name	Date of Introduction	No. of Students enrolled
UGC HRDC, STC for College/ University Teachers	Counselling and Stress Management	2-8 February, 2021.	26

### 3. **Faculty Members in the Centre :**

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
<b>Teachers of the Centre (CCSSS)</b> 1. Professor Santanu Biswas, Professor of English & Psychoanalyst 2. Professor Soumitra Basu, Professor of Philosophy & Psychological Counsellor 3. Professor Sadhan Chakraborty, Professor of Philosophy & Psychological Counsellor 4. Professor Samar Kr. Mondal, Professor of Philosophy & Psychological Counsellor 5. Dr. Prathoma Chaudhury, Psychiatrist 6. Dr. Sunny Chatterjee, Psychiatrist 7. Dr. Prasanta Kr. Roy, Hod, IoP, Kolkata 8. Dr. Subhrangsu Aditya, MBBS & Psychological Counsellor 9. Dr. Rituparna Basak, HoD, Department of Psychology, Murlidhar Girls College, Kolkata 10. Ms. Priyanka Bhaduri, Psychological Counsellor 11. Ms. Sahana Nag, Psychological Counsellor 12. Ms. Rashm Chakraborty, Psychological Counsellor 13. Ms. Madhuparna Das Choudhury, Psychological Counsellor			(All teachers are contractual)

### 4. **Research Activities:**

#### D. **Research Articles Published in Journals during the year: (International/National Peer-reviewed journals)** (Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

Name of the Teacher -Professor Samar Kumar Mondal. Title of the article -**Origin of Stress and its Management: An Analysis from the Perspective of Buddhism and Modern Psychology.** Name of the Journal -Journal of the Department of Pali, University of Calcutta (ISSN: 0971-0655), Volume -Vol-XXII, 2019

### 5. **Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

#### C. **Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

**Annual Report 2020-2021**

<b>Name of the Seminar/Workshop/ Conference /Symposium</b>	<b>Name of the Coordinator(s)/ Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
Webinar on ‘ <b>Mental Health Issues in the Context of Covid-19</b> ’	<b>Professor Samar Kumar Mondal</b>	NA		3 July, 2020
One-day National Level webinar on the theme “ <b>Mental Health Related Issues</b> ”	<b>Professor Samar Kumar Mondal</b>	NA		26 September, 2020
one-day National Level webinar on the theme “ <b>Pandemic Situation: Its Impacts on Society</b> ”	<b>Professor Samar Kumar Mondal</b>	NA		24 January, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Samar Kumar Mondal</b>	Invited Lecture	Psycho Social Impact on COVID-19	Prabhu Jagatbandhu college, Howrah	One Day, on 10 August, 2020
<b>Prof. Samar Kumar Mondal</b>	Invited Lecture	Coping Emotionally with COVID-19: A Mentoring Session for Students, Parents and Teachers	Vivekananda College, Thakurpukur	One Day, on 30 August, 2020
<b>Prof. Samar Kumar Mondal</b>	Invited Lecture	Coping Strategies and Well-Being in the Context of COVID-19	Syamaprasad College, Kolkata	One Day, on 8 September, 2020
<b>Prof. Samar Kumar Mondal</b>	Invited Lecture	Solidarity among us in this Pandemic Situation	Resurrection, NGO, Kolkata	One Day, on 16 January, 2021

**7. Extension Activities of the Centre during the year :**

**A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

**Basanti Devi College,**

- a) Certificate course in Basic Skills in Psychological Counselling
- b) Advance Certificate course in Psychological Counselling

## Annual Report 2020-2021

### C. V. RAMAN CENTRE FOR PHYSICS & MUSIC

[Department of Physics]

Phone: 033-2457-2862

Coordinator : Prof. Argha Deb

E-mail: argha\_deb@yahoo.com

#### 1. Vision and Mission of the Centre:

##### A. Vision:

- The Centre fills up the existing void in the important domain of societal behaviour in scientific approach towards objectively analysing traditional musical culture of the country and creating knowledge bases for these. This will also provide technology bases for enumeration, analysis and study of various kinds of indigenous, folk and tribal musical instruments used in different communities.
- The creation of acoustic databases for music including tribal ones and the understanding of its course of development will be another area of interest.
- The centre will provide basic knowledge as an input to information and media technology using the most natural mode of human communication and act as a resource centre for necessary data bases for the indigenous development and bench-marking all kinds of technology in the area of speech and music.
- The centre provides facilities and assistance to the development of human resource in the area through short term courses, lectures, seminars and workshop.

##### B. Mission:

To remove the existing vacuum in the country for comprehensive fundamental scientific research in the area of music and speech and the associated neuro-cognitive faculties

#### 3. Faculty Members in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph. D
Professor	Associate Professor	Assistant Professor	
2			2

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

- Effect of music and noise on autonomous nervous system
- A neuro-physical study on Music cognition and the brain
- Study of the melodic, rhythmic and emotional characteristics of music
- Studies of stochastic, chaotic and fractal behavior of speech and music signals
- Study on the phonetic quality and articulation patterns in Indian music visa-a-vi speech
- Study on the alankars in Indian classical music, namely, Taan, Meend, etc.
- Study on the Musical scales, consonance and dissonance, shrutis and the intervals used in the Indian classical music performance
- Study on Nasality in speech and music, the acoustic and perceptual cues of nasality, the degree of nasality and effect of nasality
- Study on the improvisation in different forms of Indian music
- Study on the Rhythm, tempo and styles in Indian music
- Analysis of different nuances of Indian music for finding out the features for estimating the physical correlates of musical terminologies
- Feature extraction and study on the Timbre and prosodic characteristics of vocal and instrumental music.
- Modeling of emotion based on Hilbert space.
- Music, meditation and consciousness

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

1. Tagore and Neuroscience: A Non-Linear Multifractal Study to encapsulate the evolution of Tagore Songs over A Century  
Shankha Sanyal, Archi Banerjee, Sayan Nag, Uddalok Sarkar, Souparno Roy, Ranjan Sengupta, Dipak Ghosh *Entertainment Computing* (2020), 100367; <https://doi.org/10.1016/j.entcom.2020.100367>
2. Emotions from musical notes? A psycho-acoustic exploration with Indian classical music.  
Shankha Sanyal, Archi Banerjee, Dipak Ghosh, and Samir Karmakar. *The Journal of the Acoustical Society of America* 148, no. 4 (2020): 2700-2700
3. A novel study on perception–cognition scenario in music using deterministic and non-deterministic approach Archi Banerjee, Shankha Sanyal, Souparno Roy, Sayan Nag, Ranjan Sengupta, Dipak Ghosh *Physica A*(2021) 56, 125682 <https://doi.org/10.1016/j.physa.2020.125682>
4. Brain response to color stimuli: An EEG study with nonlinear approach  
Souparno Roy, Archi Banerjee, Chandrima Roy, Sayan Nag, Shankha Sanyal, Ranjan Sengupta, Dipak Ghosh *Cognitive Neurodynamics*(2021) <https://doi.org/10.1007/s11571-021-09692-z>
5. Neural network architectures to classify emotions in Indian classical music Uddalok Sarkar, Sayan Nag, Medha Basu, Archi Banerjee, Shankha Sanyal, Ranjan Sengupta, Dipak Ghosh In *The Journal of Acoustical Society of India* (2021) (ISSN: 0973-3302) 48 (1-2), 11-19
6. Variation of singing styles within a particular Gharana of Hindustani classical music — a nonlinear multifractal study Archi Banerjee, Shankha Sanyal, Ranjan Sengupta, Dipak Ghosh In *The Journal of Acoustical Society of India* (2021) (ISSN: 0973-3302) 48 (1-2), 25-45
7. Ragas in Bollywood music — A microscopic view through multifractal cross-correlation method  
Shankha Sanyal, Archi Banerjee, Souparno Roy, Sayan Nag, Ranjan Sengupta, Dipak Ghosh In *The Journal of Acoustical Society of India* (2021) (ISSN: 0973-3302) 48 (1-2), 91-97

**E. Research Articles Published in Edited Volumes during the year:**

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. Influence of “indeterminate music” on visual art: a phenomenological, semiotic and fractal exploration.  
Pinaki Gayen, Archi Banerjee, Shankha Sanyal, Sayan Nag, Priyadarshi Patnaik, and Dipak Ghosh. In *Journal of Physics: Conference Series*, vol. 1896, no. 1, p. 012021. IOP Publishing, 2021.
2. **An acoustical and psychological study on contribution of lyrics in raga-based happy and sad Indian music.** Archi Banerjee, Shankha Sanyal, Pinaki Gayen, Souparno Roy, Priyadarshi Patnaik, and Dipak Ghosh In *Journal of Physics: Conference Series*, vol. 1896, no. 1, p. 012017. IOP Publishing, 2021.
3. **An acoustic exploration of event construals in Bengali language.**  
Spandan Chowdhury, Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, **Shankha Sanyal**, Samir Karmakar and Dipak Ghosh In *Journal of Physics: Conference Series*, vol. 1896, no. 1, p. 012012. IOP Publishing, 2021
4. **A Simultaneous EEG and EMG Study to Quantify Emotions from Hindustani Classical Music**  
Uddalok Sarkar, Soumyadeep Pal, Sayan Nag, Shankha Sanyal, Archi Banerjee, Ranjan Sengupta, and Dipak Ghosh. *Recent Developments in Acoustics*, pp. 285-299. Springer, Singapore, 2020. ISBN: 978-981-15-5776-7
5. **Style Identification of Vocal Singers in Indian Classical Music Using Meend and Andolan**  
Kaushik Banerjee, Anirban Patranabis, Ranjan Sengupta, and Dipak Ghosh. In *Advances in Speech and Music Technology*, pp. 67-82. Springer, Singapore, 2021.

## Annual Report 2020-2021

### 6. **Style of Vocal Singers in Indian Classical Music: Timbre Approach**

Anirban Patranabis, Kaushik Banerjee, Ranjan Sengupta, and Dipak Ghosh. In *Advances in Speech and Music Technology*, pp. 55-66. Springer, Singapore, 2021.

### F. **Research Articles Published in Conference Proceedings during the year:**

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. **Do musical notes correlate with emotions? A neuro-acoustical study with Indian classical music.**  
Medha Basu, Shankha Sanyal, Archi Banerjee, Ranjan Sengupta and Dipak Ghosh  
In *Proceedings of Meetings on Acoustics 179ASA*, vol. 42, no. 1, p. 035005. Acoustical Society of America, 2020
2. **Acoustic Classification of Complex Predicates and Serial Verbs in Bengali**  
Spandan Chowdhury, Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar and Dipak Ghosh  
*Proc. of International Conference on Communication, Computation & Cognition (IC3C-2021)*, VIT, Bhopal; 29-31 January 2021
3. **Neural Processing of the Prosodic Features Related to Communicative Intent in Spoken Bengali Language** Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar and Dipak Ghosh  
*Proc. of International Online Conference of Psycholinguistic and Neurolinguistic Research: Methods, Materials, and Approaches 17-19 December 2020*
4. **Perceptual Categorization of Events in Bengali Multi-verb Constructions** Spandan Chowdhury, Pijush Kanti Gayen, Uddalok Sarkar, Archi Banerjee, Shankha Sanyal, Samir Karmakar and Dipak Ghosh  
*Proc. of International Online Conference of Psycholinguistic and Neurolinguistic Research: Methods, Materials, and Approaches 17-19 December 2020*

### 5. **Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

#### B. **Books/Monographs Edited :**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Dipak Ghosh Ranjan Sengupta Shankha Sanyal Archi Banerjee	The Journal of Acoustical Society of India Special Issue on Musical Acoustics	Acoustical Society of India	0973-3302	January-April 2021

#### C. **Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/equivalent	Title of the Proceedings, if published	Place	Date
International Symposium on Frontiers of Research in speech and Music (FRSM-2020)	Argha Deb	Advances in Speech and Music Technology Proceedings of FRSM 2020 Springer	Online	05-08 November, 2021

## Annual Report 2020-2021

### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Shankha Sanyal	Do musical notes correlate with emotions? A neuro-acoustical study with Indian classical music	179th Meeting of Acoustical Society of America	Online	30 mins

## DISTRIBUTED COMPUTING [Department of Computer Science & Engineering]

Phone : 033-2457-203-/2952

Coordinator : Prof. Chandan Mazumdar

E-mail : chandanmazumdar@jadavpuruniversity.in

### 1. Vision and Mission of the Centre:

#### A. Vision:

Centre for Distributed Computing was created in the year 2002 under the Department of Computer Science & Engineering primarily to consolidate the ongoing research activities in the area and to initiate joint open-ended research programs with a view to catering to the needs of the Industry and R&D sector in particular, and the society at large. It is felt that Distributed Computing as a field has matured to come out of the four walls of the Laboratory and today, various concepts and products are being used in practice in Industry, Commerce, Military, Administration and even in Education. There is a growing need to develop and publish basic knowledge in the field and create a channel for timely utilization of the knowledge by the different organs of Society.

#### B. Mission:

1. To promote basic and applied research on the topics mentioned above at Ph.D. and Post-graduate levels.
2. To promote the Development of related Software Tools.
3. To organize seminars, group discussions, colloquia, symposia and training programs.
4. To publish Research Reports, Bulletins and Monographs.
5. To collaborate with faculty-members of other Departments and Institutes on joint research programs.
6. To interact with other educational institutions, R&D organizations, Industry, Special agencies and Non-government organizations with similar goals.
7. To accept Industrial Consultancy projects on related areas of expertise.



## Annual Report 2020-2021

### 3. **Faculty Members in the Centre :**

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
4		1	3

### 4. **Research Activities:**

#### A. **Areas of Research Activities: (Broad Areas)**

Theory and Modeling of Distributed Systems, Synchronization Issues, Distributed Systems Security, Fault Tolerance in Distributed Systems, Real-Time Distributed Systems, Embedded Distributed Systems, Reliable Communication Protocols for Distributed Systems, Mobility and Management of mobility in Distributed Systems, Software Life Cycle Management for Distributed Systems, Web-based Systems, Reliability Issues, Digital Forensics, Disaster Management, IT for the under-privileged and handicapped, Enterprise Information Security, Data Privacy.

#### B. **Major Research Projects:**

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Development of Indigenous Technologies for Secure Software Defined Network	Individual	Prof. Chandan Mazumdar	JCBCAT, DRDO	2017-2021
Development of PDP Framework	Individual	Prof. Chandan Mazumdar	NICSI, MeiTy	2019-2021
Development of Vulnerability Detection Methodology for IoT Devices	Individual	Prof. Chandan Mazumdar	NICSI, MeiTy	2019-2021
Security Methods and Verification for Software Defined Networks	Individual	Prof. Chandan Mazumdar	SAG, DRDO	2020-2022
Review and Validation of PDP Framework and Design and Development of a Compliance Checker Tool for the Framework	Individual	Prof. Chandan Mazumdar	MeiTy	2020-2022

#### C. **Doctoral Research Activities:**

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Centre
2	5

#### D. **Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

## Annual Report 2020-2021

Roy, P., Sengupta, A., and Mazumdar, C., “A Structured Control Selection Methodology for Insider Threat Mitigation”, In: Procedia Computer Science, Volume 181, 2021, Pages 1187-1195, ISSN 1877-0509.

**E. Research Articles Published in Edited Volumes during the year**  
(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no. Name of the Publisher, ISBN/ISSN No., Year)

Manna A., Sengupta A., and Mazumdar C., “A Survey of Methodologies for Protecting Privacy of User Data within Enterprise Information Infrastructure”, In: Cruz-Cunha, M. M. and Mateus-Coelho, N. R. (eds) Handbook of Research on Cyber Crime and Information Privacy, Hershey, PA: IGI Global, 2020.

**F. Research Articles Published in Conference Proceedings during the year:**  
(Name of authors, Title of the paper, *Title of the Proceedings*, page no., Name of the Publisher, ISSN/ISBN No., Year)

Mandal D. and Mazumdar, C., “Towards an Ontology for Enterprise Level Information Security Policy Analysis”, Proceedings of ICISSP 2021, pp. 492-299, Scitepress, 2021.

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Debashis Mandal	Towards an Ontology for Enterprise Level Information Security Policy Analysis	ICISSP 2021	Online	11-13 February, 2021

## HUMAN SETTLEMENT PLANNING

[Department of Architecture]

Phone: 033-2457-2425

Joint Coordinators: Prof. Jayita Guha Niyogi

Prof. Suchandra Bardhan

E-mail: hsp.centre@jadavpuruniversity.in

**1. Vision and Mission of the Centre:**

- A. Vision:** The Centre for Human Settlement Planning envisages research, outreach, advocacy and dissemination of knowledge in all allied areas of spatial and physical planning following the principles of sustainable, resilient and inclusive approaches for a safe and just human habitation.

## Annual Report 2020-2021

### B. Mission:

- To propagate general awareness about the application of the planning process to the improvement of environments for human living;
- To provide assistance to *panchayats* and municipalities, at village, intermediate and district levels, in preparing plans for development of living space with a view to economic growth and social justice;
- To promote effective collaboration with other universities and centres working in this field in India and abroad;
- To organise regular courses, lectures, seminars, workshops, training programmes etc. in this field.

### 3. Faculty Members in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
2			2

### 4. Research Activities:

#### A. Areas of Research Activities : (Broad Areas)

Land use planning, transportation planning, urban planning and landscape planning

#### 5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:

#### C. Seminar/Workshop/Conference/Symposium Organized:

Name of the Seminar/Workshop/Conference /Symposium	Name of the Coordinator(s)/Organizing Secretary/ equivalent	Title of the Proceedings, if published	Place	Date
Guest Talk on ‘ <b>Overview of urban transformation in suburbs of Kolkata</b> ’ by Prof. Ranjan Chattopadhyay, Former DG, KMDA, WB.	<b>Prof. Jayita GuhaNiyogi</b>	NA	ONLINE	27 November, 2020
Guest Talk on ‘ <b>Participatory planning : Draft development plan of Chandernagore Municipal Corporation</b> ’ by Prof. Ranjan Chattopadhyay, Former DG, KMDA, WB.	<b>Prof. Suchandra Bardhan</b>	NA	ONLINE	18 December, 2020

## Annual Report 2020-2021

### IC DESIGN AND FABRICATION [Department of Electronics & Telecommunication Engineering]

Phone: 033-2457-2406

033-2414-6217

Coordinator: Prof. Subir Kumar Sarkar

E-mail: sksarkar.etce@jadavpuruniversity.in

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Summer Training on Microelectronics Technology and VLSI Design along with Low Power VLSI Design.	6 Weeks		60
Winter Training on Microelectronics Technology and VLSI Design along with Low Power VLSI Design.	6 Weeks		30

#### 3. Faculty Members in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph. D
Professor	Associate Professor	Assistant Professor	
5			

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

1. Electronic Devices including Semiconductor Nanodevices : Modeling and Simulation.
2. Photonics Devices
3. Porous Silicon Formation by Alumina Template
4. Single electron & spintronics devices and their applications in VLSI circuits
5. Perovskite Solar Cells based on Titanium, Nickel and Cadmium doped BiFeO<sub>3</sub> active material.
6. Organic and Inorganic Dyesensitized Solar Cells
7. VLSI Circuit Design and RF VLSI
8. VLSI interconnect delay optimization.
9. CMOS MEMS integration and signal conditioning of gas sensor.
10. Porous silicon low pressure sensors
11. Study of nanocrystalline silicon, Zinc Oxide TiO<sub>2</sub> and its application on Solar Cells and gas sensors.
12. Design and simulation of RF MEMS based capacitive switch.
13. Nano-devices and Low power VLSI circuits
14. MEMS, NEMS, RF MEMS
15. Microwave passive device
16. Antenna optimization
17. Substrate integrated waveguide
18. Microwave and millimeter wave antennas
19. Dielectric resonator antennas (DRA)
20. Antennas for 5G systems
21. Antenna Optimization

## Annual Report 2020-2021

22. Digital watermarking and data security
23. Security and Cryptography
24. RFID and its applications
25. Wireless communication
26. Digital signal processing
27. Gas Sensors
28. Mobile Ad-hoc networks (MANET)
29. Wireless sensor networks (WSN)
30. Organic Field effect transistor.
31. VLSI Architectures and algorithms

**B. Major Research Projects :**  
**Prof. Subir Kumar Sarkar (Co-ordinator)**

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Cost Effective and Manpower Efficient Real-Time Implementation of RFID Based Surveillance System for Poultry Based Industry in Rural/ Urban Region to Solve the Avian Influenza/Bird Flu Problem	DST-WB	Subir Kumar Sarkar	15.908 lakhs	(2018-Ongoing)

**Dr. Sayan Chatterjee (Co co-ordinator)**

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Adaptive Self Correcting Antenna Array System in Cooperative Communication for Different Disaster Management Scenarios	Individual	PI: Sayan Chatterjee	SERB, Core Research Grant , Department of Science and Technology, Govt. of India	3 years @2021
Miniature Antenna Development For Communication Between Airborne Drones In Swarm	Individual	Bhaskar Gupta Co PI : Sayan Chatterjee	Indo Czech Bilateral Cooperation sponsored by Department of Science and Technology, Govt. of India	3 years @2020
Vision guided Auto-Lander for Planetary mission	Individual	Amitava Gupta Co PI : Sayan Chatterjee	Indian Space Research Organization (ISRO)	3 years @2019
Design and Development of X band Dual Polarized Waveguide Slotted Array Antenna	Individual	PI: Sayan Chatterjee	Indian Space Research Organization (ISRO)	3 years @2017

## Annual Report 2020-2021

Design and Development of Adaptive Phased Array Antenna System for Dynamic Air Traffic RADAR used in Disaster Management	Individual	PI: Sayan Chatterjee	Major research project , RUSA, JU	1 year @2019
Versatile Data Acquisition & signal processing platform for Seismic Application: Design of RF subsystem	Individual	PI: Sayan Chatterjee	MeITy, Govt. of India	6 years @2015

### B. Doctoral Research Activities:

Number of students awarded Ph.D during the year	Number of Ph. D students registered in the Centre
3	7

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Vol., (No.), page no./article no., Year of publication)

**Prof. Subir Kumar Sarkar, (Co-ordinator)**

1. Savio Jay Sengupta, Bijoy Goswami, Pritam Das, Subir Kumar Sarkar "A Noise Immune Double Suspended Gate MOSFET for Ultra Low-Power Applications" Silicon <https://doi.org/10.1007/s12633-021-01283-1>
2. Ghosh, S., Venkateswaran, P. and Sarkar, Subir Kumar Sarkar. (2021), "Analysis of circuit performance of Ge-Si hetero structure TFET based on analytical model", Circuit World, ISSN: 0305-6120. <https://doi.org/10.1108/CW-08-2020-0175>
3. S Biswas, S Nath, J K Sing, S.K. Sarkar "Extended nucleic acid memory as the future of data storage technology", International Journal of Nano and Biomaterials, 2020 Vol.9 No.1/2, pp.2 – 17, May 2020
4. Priyanka Saha and Subir Kumar Sarkar, "Drain current characterization of Dielectric Modulated Split Gate TFET for bio-sensing application", Materials Science in Semiconductor Processing, Elsevier, vol. 124, 105598, Nov. 2020.
5. Komal Kumari, Abir Jana, Anup Dey, Tapas Chakrabarti and Subir Kumar Sarkar, "Lead free CH<sub>3</sub>NH<sub>3</sub>SnI<sub>3</sub> based perovskite solar cell using ZnTe nano flowers as hole transport layer", Optical Materials, Elsevier, [doi.org/10.1016/j.optmat.2020.110574](https://doi.org/10.1016/j.optmat.2020.110574), Nov. 2020
6. Priyanka Saha and Subir Kumar Sarkar, "Explicit threshold voltage modeling insight for short channel characterization of WFE Elliptical GAA strained-Si MOSFET", Journal of Electronic Materials, Springer, vol. 49, pp.7486-7494, (DOI: 10.1007/s11664-020-08503-1, September 2020.
7. Sourav Guha, Prithviraj Pachal, Sudipta Ghosh and Subir Kumar Sarkar, "Analytical model of a novel double gate metal-infused stacked gate-oxide tunnel field-effect transistor (TFET) for low power and high-speed performance", Superlattices and Microstructures, Volume 146, 2020, ISSN 0749-6036, [doi.org/10.1016/j.spmi.2020.106657](https://doi.org/10.1016/j.spmi.2020.106657).
8. Anup Dey and Subir Kumar Sarkar, "Fabrication and Application of TiO<sub>2</sub> based thin film capacitive bio-sensor towards fruit freshness detection on silicon substrate", Silicon, Springer, [doi.org/10.1007/s12633-020-00638-4](https://doi.org/10.1007/s12633-020-00638-4), Aug 2020
9. Anup Dey and Subir Kumar Sarkar, "Room Temperature ZnO and Au ZnO Quantum Dots thin film Gas Sensor Fabrication for Detecting of Volatile Organic Compound Gases", IEEE Sensors Journal, vol. 20, issue 21, pp.12602-12609, Nov. 2020

## Annual Report 2020-2021

10. Priyanka Saha and Subir Kumar Sarkar, "Analytical modeling of Ion sensitive broken gate TFET for pH sensing applications", *IEEE Sensors Letters*, Vol. 4, No.7, pp. 1-4, July 2020.
11. Arpita Ghosh and Subir Kumar Sarkar, "Performance investigation of nanoscale reversible logic gates designed with SE-TLG Approach", *International Journal of Electronics*, vol.107, issue 11, pp. 1735-1753, DOI: 10.1080/00207217.2020.1756433, May 2020

### **Dr. Sayan Chatterjee (Co co-ordinator)**

1. Arijit Majumdar, Soumyo Chatterjee, Sayan Chatterjee, Sheli Sinha Chaudhari, Dipak Ranjan Poddar, "An ambient temperature dependent small signal model of GaN HEMT using method of curve fitting" *International Journal of RF and Microwave Computer-Aided Engineering*, DOI: 10.1002/mmce.22434, Vol 30, Issue 12, 2020.
2. Amartya Banerjee, Kaushik Patra, Sayan Chatterjee, Bhaskar Gupta, Anup Kumar Bandyopadhyay, "Theoretical Investigations on CPW-Fed Single and Dual-Polarized Slot Radiators Using Schelkunoff's Biconical Antenna Analysis", *Radio engineering*, Vol. 29, No. 2, pp no 305-312 June 2020.
3. Sourav Das Chowdhury, Bhaswar Dutta Gupta, Sayan Chatterjee, Ranjan Sen and Mrinmay Pal, "Explosion induced rogue waves and chaotic multi-pulsing in a passively mode-locked all-normal dispersion fiber laser", *Journal of Optics*, Volume 22, Number 6, May, 2020.

### **E. Research Articles Published in Edited Volumes during the year:**

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)  
**Prof. Subir Kumar Sarkar (Co-ordinator)**

1. Abir Jana, Disha Bhattacharjee, Komal Kumari, Anup Dey, Bijoy Goswami and Subir Kumar Sarkar, "Designing Memristor Based Timing Circuits and Performance Comparison with CMOS Counterparts" In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) *Smart Trends in Computing and Communications: Proceedings of SmartCom 2020. Smart Innovation, Systems and Technologies*, vol 182. Springer, Singapore, 2020, pp.269-279., July 2020
2. Anup Dey, Abir Jana, Komal Kumari, Bijoy Goswami, Poushali Nandi and Subir Kumar Sarkar, "Room Temperature Pt-Modified WO<sub>3</sub>/p-Si Film Gas Sensor for Detection of Methanol." In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) *Smart Trends in Computing and Communications: Proceedings of SmartCom 2020. Smart Innovation, Systems and Technologies*, vol 182. Springer, Singapore, 2020, pp.201-209, July 2020.
3. Dipanjan Sen, Bijoy Goswami, Anup Dey and Subir Kumar Sarkar, "Performance Evaluation of Novel Channel Engineered Junctionless Double Gate MOSFET for Radiation Sensing and Low Power Circuit Application", Accepted for Book Titled "Electrical and Electronic Devices, Circuits and Materials: Design and Applications", CRC Press, Taylor and Francis, Jun 2020

### **F. Research Articles Published in Conference Proceedings during the year:**

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No., Year)

#### **Prof. Subir Kumar Sarkar (Co-ordinator)**

1. Primit Brata Chanda, **Subir Kumar Sarkar**, "Medical Image Based Approach For Classification Of Several Stages For Retinopathy Disease Using Machine Learning Methodology", October 2020, IET, 978-1-83953-272-6, MFIS 2020
2. P. B. Chanda and **Subir Kumar Sarkar**, "Cardiac MR Images Segmentation For Identification Of Cardiac Diseases Using Fuzzy Based Approach," 2020 Third International Conference on Smart Systems and Inventive Technology (ICSSIT), Tirunelveli, India, 2020, pp. 1238-1246, doi: 10.1109/ICSSIT48917.2020.9214080.
3. Primit Brata Chanda, Aniruddha Paul, Aritra Paul and **Subir Kumar Sarkar**, "Spondylosis Detection And Classification Of Cervical Images Using ATMFCMC Based Medical Image Segmentation Methods", (April 14, 2020). Proceedings of the International Conference on Advances in Electronics,

## Annual Report 2020-2021

- Electrical & Computational Intelligence (ICAEEC) 2019, Available at SSRN: <https://ssrn.com/abstract=3575474> or <http://dx.doi.org/10.2139/ssrn.3575474>
4. S Nath, R Bandyopadhyay, S Biswas, J K Sing and **Subir Kumar Sarkar**, "A New Global Routing Optimization Algorithm based on Pigeon Inspired Optimization," 2020 IEEE Calcutta Conference (CALCON), Kolkata, India, 2020, pp. 184-188
  5. Subhprapatim Nath, Sagnik Gupta, Saptarshi Biswas, Rupam Banerjee, Jamuna Kanta Sing and **Subir Kumar Sarkar**, "GPSO Hybrid Algorithm for Rectilinear Steiner Tree Optimization", in IEEE VLSI Device Circuit And System (VLSI DCS), 18-19 July 2020, Kolkata, India, DOI:10.1109/VLSIDCS47293.2020.9179861
  6. Subhprapatim Nath, Abhijit Paul, Rupam Banerjee, Swarnabja Bhaumik, Jamuna Kanta Sing and **Subir Kumar Sarkar**, "Optimizing FANET Routing Using a Hybrid Approach of Firefly Algorithm and ACO-Lévy Flight", in IEEE VLSI Device Circuit And System (VLSI DCS), 18-19 July 2020, Kolkata, India, DOI: 10.1109/VLSIDCS47293.2020.9179956
  7. S.Ghosh, S. Kundu, S. Guha, J. Ghosh, P. Pachal and **Subir Kumar Sarkar**, "Effect of Body Thickness on Device Performance of Graded Channel Tri-Metal Double Gate Stack Gate TFET", 2020 IEEE VLSI Device Circuit And System (VLSI DCS), Kolkata, India, 18-19 July, 2020, pp. 427-431, doi: 10.1109/VLSIDCS47293.2020.9179899.
  8. S. Ghosh, P. Pachal, R. Kumar, S. Kundu, J. Ghosh and **Subir Kumar Sarkar**, "Double Gate p-n-p-n TFET with Hetero Oxide Dielectric and High-K Spacer Engineering," 2020 IEEE VLSI Device Circuit And System (VLSI DCS), Kolkata, India, 18-19 July, 2020, pp. 1-5, doi: 10.1109/VLSIDCS47293.2020.9179943.
  9. Priyanka Saha and **Subir Kumar Sarkar**, "Workfunction engineering based Broken Gate TFET: modeling and simulation based theoretical analysis", IEEE Region 10 Symposium (TENSYP), 5-7<sup>th</sup>, June 2020, Dhaka, Bangladesh
  10. Dipanjan Sen, Bijoy Goswami, Anup Dey, Priyanka Saha and **Subir Kumar Sarkar**, "Impact of Self-Heating and Nano-Gap Filling Factor on AlGaAs/GaAs Junction-Less DG-MOSFET Based Biosensor for Early Stage Diagnostics", IEEE Region 10 Symposium (TENSYP), 5-7<sup>th</sup> June ,2020, Dhaka, Bangladesh.

### **Dr. Sayan Chatterjee (Co co-ordinator)**

1. Swarup Dandapat , Shrabanti Das, Moumita Das, Sayan Chatterjee, "**High Speed Low Power CML Technique Based Frequency Divider in 180nm Technology**," Proceedings of International Conference on Frontiers in Computing and Systems, pp. 915-922, Springer, Print 978-981-15-7833-5 West Bengal India, 2020.
2. Shrabanti Das, Swarup Dandapat, Sayan Chatterjee, "**Design of Low Phase-Noise LC-VCO at 2.5 GHz by Body-Bias Technique Using CMOS 180 nm Technology**," 2020 IEEE VLSI Device Circuit And System (VLSI DCS) pp 1-4, 18-19 July 2020 IEEE, ISBN978-1-7281-1934-2.
3. Swarup Dandapat, Sabarno Chowdhury, Shrabanti Das, Sayan Chatterjee, "**A Wide Tuning Range LC VCO through Switched Capacitor Bank using TSMC 180nm Technology**", Proceedings of 2020 IEEE Region 10 Symposium (TENSYP), pp 1058-1061, Dhaka, Bangladesh, 2020, IEEE E-ISSN 2642-6102
4. Arka Bhattacharyya, Amartya Banerjee, Sayan Chatterjee, Bhaskar Gupta "**Dual-Band Minkowski Fractal Patch Antenna with Polarization Diversity**", Proceedings of IEEE International Conference (CALCON 2020) pp. 89-92, 2020, IEEE ISBN 978-1-7281-5362-9.
5. S. G. Mallick, B. Biswas, S. Chatterjee, G. A. Kumar and D. R. Poddar, "**A Multilayered Transition between SIW and ESIW**", Proceedings of IEEE International Conference (CALCON 2020) pp. 181-183, 2020 IEEE ISBN 978-1-7281-5362-9.
6. T. K. Das, and S. Chatterjee, "**Improved Stopband Rejection in Compact Microstrip Filters by Transmission Zero Reallocation**", Proceedings of IEEE International Conference (CALCON 2020) pp. 10-14, 2020, IEEE ISBN 978-1-7281-5362-9



**Annual Report 2020-2021**

**H. Research Collaboration with other Departments/Institutes/Industries:**

**Prof. Subir Kumar Sarkar**

<b>Name of the Teacher(s)</b>	<b>Name of the Collaborator(s)</b>	<b>Collaborating Dept./Inst./Indus.</b>	<b>Nature of Collaboration</b>	<b>Duration</b>
<b>Prof. Subir Kumar Sarkar</b>	Prof. Supriyo Bandyopadhyay	Virginia Commonwealth University, USA.	research activities in the field of Spintronics	1999 to till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Partha Bhattacharya	Indian Institute of Engineering Science and Technology, Shibpur (former BESU).	research activities in the field of nanodevices	2008 to till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Pranab Kishore Dutta and Mr. Swanirbhar Majumder	North Eastern Regional Institute of Science and Technology (NERIST).	research activities in the field of nanodevices	2017 to till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Ashish Kumar De and Prof. B. Maji	National Institute of Technology, Durgapur.	research activities in the field of nanodevices	2008 to till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. N. B. Singh	Manipur Institute of Technology.	research activities in the field of nanodevices	2002 to till date
<b>Prof. Subir Kumar Sarkar</b>	Mr. Sudipta Ghosh and Mr. Subhrapratim Nath	Meghnad Saha Institute of Technology, Kolkata	research activities in the field of nanodevices	2017 to till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Bijoy Kantha and Dr. Saheli Sarkhel	Netaji Subhash Engineering College, Garia, Kolkata	research activities in the field of nanodevices	2016 to till date
<b>Prof. Subir Kumar Sarkar</b>	Mr. Dinesh Kumar Dash	Parala Maharaja Engineering College, Berhampur, Odisha	research activities in the field of nanodevices	2020 to till date
<b>Prof. Subir Kumar Sarkar</b>	Mr. Bijoy Goswami	Assam engineering College, Guwahati, Assam.	Research activities in the field of nanodevices	2020 to till date
<b>Prof. Subir Kumar Sarkar</b>	Dr. Manas Ranjan Nayak	KIT, Bhubaneswar Odisha.	Research activities in the field of nanodevices	2019 to till date

**Annual Report 2020-2021**

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

**A. Books/Monographs Published :**

**Prof. Subir Kumar Sarkar**

<b>Name of the Author(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
Abir Jana, Disha Bhattacharjee, Komal Kumari, Anup Dey, Bijoy Goswami and Subir Kumar Sarkar	“Designing Memristor Based Timing Circuits and Performance Comparison with CMOS Counterparts”	In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) Smart Trends in Computing and Communications: Proceedings of SmartCom 2020.	Online ISBN 978-981-15-5224-3	2020
Anup Dey, Abir Jana, Komal Kumari, Bijoy Goswami, Poushali Nandi and Subir Kumar Sarkar	“Room Temperature Pt-Modified WO <sub>3</sub> /p-Si Film Gas Sensor for Detection of Methanol.”	In: Zhang YD., Senjyu T., SO-IN C., Joshi A. (eds) Smart Trends in Computing and Communications: Proceedings of Smart Com 2020.	Online ISBN 978-981-15-5224-3	2020
Dipanjana Sen, Bijoy Goswami, Anup Dey and Subir Kumar Sarkar	“Performance Evaluation of Novel Channel Engineered Junctionless Double Gate MOSFET for Radiation Sensing and Low Power Circuit Application” Accepted for Book Titled “Electrical and Electronic Devices, Circuits and Materials: Design and Applications”	CRC Press, Taylor and Francis,	e-Book ISBN 9781003097723	2020

**B. Books/Monographs Edited :**

<b>Name of the Editor(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
Prof. Subir Kumar Sarkar	Journal: Current Electronics and Telecommunications	Pisco Med Publishing	ISSN (Online): 2661-4022(O)	2020

**C. Seminar/Workshop/Conference/Symposium Organized:**

**(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)**

**Dr. Sayan Chatterjee (Co co-ordinator)**

<b>Name of the Seminar/Workshop/Conference /Symposium</b>	<b>Name of the Coordinator(s)/ Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>

### Annual Report 2020-2021

Hult Prize Impact Summit Kolkata 2021	Campus Coordinator : Sayan Chatterjee	Nil	Kolkata	5 to 6 March, 2021
E-weekend	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	26 to 28 February, 2021
Call for Idea contest : Covid 19	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	14 April to 26 July, 2020
Call for Idea contest for National Innovation contest 2020 : Theme Toy industry	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	01 June to 01 July, 2020
Webinar on Developmental Finance and Macro Shocks - A Few Perspectives	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	28th November 2020
Webinar on Placements - Graduating into a New Normal Job market	Organizing secretary : Sayan Chatterjee	Nil	Kolkata	7 November, 2020

#### E. Orientation Courses/ Refresher Courses Attended:

Name of the Teacher	Title of the Course	Place	Date
<b>Prof. Subir Kumar Sarkar acted as resource Person(Invited speaker)</b>	“FDP on Entrepreneurship, Innovation and Capital Venture”	Jadavpur University, Kolkata	24 February, 2021
<b>Prof. Subir Kumar Sarkar acted as resource Person(Invited speaker)</b>	“IoT & Cyber Security” at AICTE sponsored ATAL FDP	Institute of Engineering & Management	21 to 25 June, 2021.
<b>Prof. Subir Kumar Sarkar acted as resource Person(Invited speaker)</b>	“Security in Wireless Sensor Networks”, in One Week Faculty Development Programme on Image Authentication, WSN & IoT	Department of CSE, JIS College of Engineering, West Bengal, India.	22 to 26 June, 2020

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
<b>Prof. Subir Kumar Sarkar</b>	invited talk	“FDP on Entrepreneurship, Innovation and Capital Venture”	Jadavpur University, Kolkata	24 February, 2021
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Plenary talk	Renovation and Innovation in nano device structures for performance improvement”at International Conference on Electronics, Photonic, and Smart Technologies (IC-ePhaST '20)	Department of Electronics & Communication Engineering, SRM Institute of Science and Technology, Kattankulathur	16 November, 2020

### Annual Report 2020-2021

<b>Prof. Subir Kumar Sarkar</b>	Guest lecture	"Computation without power dissipation: Low power VLSI a Prospective solution" in International Conference on Electronics, Photonics and Smart Technologies (ICePHaST'20)	Department of Electronics & Communication Engineering, SRM Institute of Science and Technology, Kattankulathur.	16 November, 2020
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Keynote speech	"Security and Trust Management in Wireless selforganizing Networks: A Strategic Challenge", in three days' seminar on 2 <sup>nd</sup> International Conference on Ubiquitous and Emerging Concepts on Sensors & Transducers (UEM COS 2020)	Dept. of ECE, University of Engineering and Management (UEM), Kolkata, India.	16-18 October, 2020
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Plenary talk	"Trust Management in Wireless self organizing Networks: A Strategic Challenge", in three days' seminar on IEEE International Conference for Convergence in Engineering (ICCE 2020)	Dept. of ECE, Netaji Subhash Engineering College, Kolkata, India.	4-6 September, 2020
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Keynote speech	"Transient and biodegradable electronic: EWaste Management" at webinar on, in IEEE VLSI DCS-2020	MSIT, Kolkata, West Bengal, India	18 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Delivered a Keynote speech	"Security in Wireless Sensor Networks", in One Week Faculty Development Programme on Image Authentication, WSN & IoT	Department of CSE, JIS College of Engineering, West Bengal, India.	22-26 June, 2020
<b>Prof. Subir Kumar Sarkar</b>	Invited talk	"Non-conventional solar cells developing cost effective sustainable Green Energy" at Webinar Series on "Sustainable Energy	Department of Electronics & Communication Engineering, BPPIMT, Kolkata	19 June, 2021
<b>Sayan Chatterjee</b>	Invited lecture	FDP on Recent Innovations And Trends in Antenna Design	Dept. of ECE, Silicon Institute Of Technology, Sambalpur, Odisha	23-27 June, 2020
<b>Sayan Chatterjee</b>	Session chair	Faculty Development Program on Entrepreneurship Innovation and Capital Venture	Dept. of ETCE, Jadavpur University	25 February, 2021

**Annual Report 2020-2021**

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Subir Kumar Sarkar</b>	Spondylosis Detection And Classification Of Cervical Images Using ATMFCMC Based Medical Image Segmentation Methods	International Conference on Advances in Electronics, Electrical & Computational Intelligence (ICAEEC)	Indian Institutes of Information Technology, Allahabad, Prayagraj, U.P, India	14 April, 2020
<b>Prof. Subir Kumar Sarkar</b>	Workfunction engineering based Broken Gate TFET: modeling and simulation based theoretical analysis	IEEE Region 10 Symposium (TENSYPMP).	Dhaka, Bangladesh	5-7 June, 2020
<b>Prof. Subir Kumar Sarkar</b>	Impact of Self-Heating and Nano-Gap Filling Factor on AlGaAs/GaAs Junction-Less DG-MOSFET Based Biosensor for Early Stage Diagnostics” ,	IEEE Region 10 Symposium (TENSYPMP)	Dhaka, Bangladesh.	5-7 June, 2020
<b>Prof. Subir Kumar Sarkar</b>	Non-conventional solar cells developing cost effective sustainable Green Energy"	“Webinar Series on "Sustainable Energy"	BPPIMT, Kolkata.	19 June, 2020
<b>Prof. Subir Kumar Sarkar</b>	Transient and biodegradable electronic: EWaste Management	2020 IEEE VLSI Device Circuit And System (VLSI DCS).	MIST, Kolkata, India.	18 -19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	GPSO Hybrid Algorithm for Rectilinear Steiner Tree Optimization	2020 IEEE VLSI Device Circuit And System (VLSI DCS).	MIST, Kolkata, India.	18 -19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Optimizing FANET Routing Using a Hybrid Approach of Firefly Algorithm and ACO-Lévy Flight	2020 IEEE VLSI Device Circuit And System (VLSI DCS).	MIST, Kolkata, India.	18 -19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Effect of Body Thickness on Device Performance of Graded Channel Tri-Metal Double Gate Stack Gate TFET	2020 IEEE VLSI Device Circuit And System (VLSI DCS)	MIST, Kolkata, India.	18 -19 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	Double Gate p-n-p-n TFET with Hetero Oxide	2020 IEEE VLSI Device Circuit and	MIST, Kolkata, India.	18 -19 July, 2020

**Annual Report 2020-2021**

	Dielectric and High-K Spacer Engineering	System (VLSI DCS).		
<b>Prof. Subir Kumar Sarkar</b>	Cardiac MR Images Segmentation For Identification Of Cardiac Diseases Using Fuzzy Based Approach.	2020 Third International Conference on Smart Systems and Inventive Technology (ICSSIT)	Tirunelveli, India	20-22 August, 2020
<b>Prof. Subir Kumar Sarkar</b>	Medical Image Based Approach For Classification Of Several Stages For Retinopathy Disease Using Machine Learning Methodology	Michael Faraday IET International Summit 2020 (MFIS 2020)	Kolkata	3-4 October, 2020
<b>Prof. Subir Kumar Sarkar</b>	Security and Trust Management in Wireless self organizing Networks: A Strategic Challenge	2 <sup>nd</sup> International Conference on Ubiquitous and Emerging Concepts on Sensors & Transducers (UEM COS 2020)	University of Engineering and Management (UEM), Kolkata, India.	16-18 October, 2020
<b>Prof. Subir Kumar Sarkar</b>	Trust Management in Wireless self organizing Networks: A Strategic Challenge	IEEE International Conference for Convergence in Engineering (ICCE 2020)	Dept. of ECE, Netaji Subhash Engineering College, Kolkata, India.	4-6 September, 2020
<b>Prof. Subir Kumar Sarkar</b>	Renovation and Innovation in nano device structures for performance improvement	International Conference on Electronics, Photonic, and Smart Technologies (IC-ePhaST '20)	SRM Institute of Science and Technology, Kattankulathur .	16 November, 2020
<b>Prof. Subir Kumar Sarkar</b>	Computation without power dissipation: Low power VLSI a Prospective solution	International Conference on Electronics, Photonics and Smart Technologies (ICePHaST'20)	SRM Institute of Science and Technology, Kattankulathur	16 November, 2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Subir Kumar Sarkar</b>	“FDP on Entrepreneurship, Innovation and Capital Venture”	Jadavpur University, Kolkata	24 February, 2021
<b>Prof. Subir Kumar Sarkar</b>	“Renovation and Innovation in nano device structures for performance improvement” at International Conference on	Department of Electronics & Communication Engineering, SRM Institute of Science and	16 November, 2020

### Annual Report 2020-2021

	Electronics, Photonic, and Smart Technologies (IC-ePhaST '20)	Technology, Kattankulathur	
<b>Prof. Subir Kumar Sarkar</b>	"Computation without power dissipation: Low power VLSI a Prospective solution" in International Conference on Electronics, Photonics and Smart Technologies (ICePHaST'20)	Department of Electronics & Communication Engineering, SRM Institute of Science and Technology, Kattankulathur.	16 November, 2020
<b>Prof. Subir Kumar Sarkar</b>	"Security and Trust Management in Wireless selforganizing Networks: A Strategic Challenge", in three days' seminar on 2 <sup>nd</sup> International Conference on Ubiquitous and Emerging Concepts on Sensors & Transducers (UEM COS 2020)	organized by Dept. of ECE, University of Engineering and Management (UEM), Kolkata, India.	16-18 October, 2020
<b>Prof. Subir Kumar Sarkar</b>	"Trust Management in Wireless self organizing Networks: A Strategic Challenge", in three days' seminar on IEEE International Conference for Convergence in Engineering (ICCE 2020)	Dept. of ECE, Netaji Subhash Engineering College, Kolkata, India.	4-6 September, 2020
<b>Prof. Subir Kumar Sarkar</b>	"Transient and biodegradable electronic: EWaste Management" at webinar on, in IEEE VLSI DCS-2020	MSIT, Kolkata, West Bengal, India	18 July, 2020
<b>Prof. Subir Kumar Sarkar</b>	"Security in Wireless Sensor Networks", in One-Week Faculty Development Programme on Image Authentication, WSN & IoT	Department of CSE, JIS College of Engineering, West Bengal, India.	22 -26 June, 2020
<b>Sayan Chatterjee</b>	ARIIA 2021 - Orientation and Demonstration of Data Submission Portal	Ministry of Education's Innovation Cell	22 December, 2020 at 10.30 AM and 2.30 – 4.30PM
<b>Sayan Chatterjee</b>	Online Orientation Session on IIC3.0 for ERO Zone	Ministry of Education's Innovation Cell	7 December, 2020 at 3.00 PM
<b>Sayan Chatterjee</b>	Orientation cum Training Session on NISP Implementation	Ministry of Education's Innovation Cell	7 August, 2020 3-5 PM

- 6. Major Achievements of the Centre during the year:**  
**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

## Annual Report 2020-2021

<b>Name of the Faculty Member</b>	<b>Name of the Fellowship/ Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>
<b>Prof. Subir Kumar Sarkar</b>	Continued as Editor-In-Chief of the Journal International Journal of Nano Electronics, Circuits and System.	-	-
<b>Prof. Subir Kumar Sarkar</b>	Continued as Editorial board member of the Journal of Engineering, Computing & Architecture.	-	-
<b>Prof. Subir Kumar Sarkar</b>	He has delivered 122 Plenary/Keynote/ Invited talks, 19 IEEE Distinguished Lectures, and chaired 46 technical sessions in various academic programs in India and Abroad.	-	-
<b>Prof. Subir Kumar Sarkar</b>	Acting as Coordinator of IC Design and Fabrication center of ETCE Department, JU	Jadavpur University	Kolkata

### **D. Any Other Major Achievements:**

1. Prof. Subir Kumar Sarkar has guided 57 Ph.D scholars and PG thesis of 98 M.E/M.Tech students. Presently, 6 more scholars have been registered for Ph.D
2. Prof. Subir Kumar Sarkar has been invited several times as one of the expert members in various National Level Accreditation Board.
3. Prof. Subir Kumar Sarkar acted as Editorial board member of International Journal of Current Electronics and Telecommunications at PiscoMed Publishing Pte. Ltd.
4. Prof. Subir Kumar Sarkar acting as Editor-In-Chief of the Journal International Journal of Nano Electronics, Circuits and System.
5. Prof. Subir Kumar Sarkar in Editorial board member of the Journal of Engineering, computing & Architecture.
6. Prof. Subir Kumar Sarkar is a Senior Member of IEEE, IEEE Electron Device Society Distinguished Lecturer, Life fellow of The Institution of Engineers(India) and Life fellow of Institution of Electronics and Telecommunication Engineers, Life member of ISTE and Life member of Indian Association for the Cultivation of Science (IACS).

### **7. Extension Activities of the Centre during the year:**

#### **A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**

1. Prof. Subir Kumar Sarkar has collaborative research activities in the field of Spintronics with Prof. Supriyo Bandyopadhyay of Virginia Commonwealth University, USA.
2. Prof. Subir Kumar Sarkar is presently continuing collaborative research activities in nanodevices with Dr. Partha Bhattacharya of Indian Institute of Engineering Science and Technology, Shibpur (former BESU).
3. Prof. Subir Kumar Sarkar is presently continuing collaborative research work with:
4. Dr. Pranab Kishore Dutta and Mr. Swanirbhar Majumder of North Eastern Regional Institute of Science and Technology (NERIST). Dr. Ashish Kumar De and Prof. B. Maji of National Institute of Technology, Durgapur.
5. Dr. N. B. Singh of Manipur Institute of Technology.
6. Mr. Sudipta Ghosh and Mr. Subhrpratik Nath of Meghnad Saha Institute of Technology, Kolkata
7. Dr. Bijoy Kantha and Dr. Saheli Sarkhel of Netaji Subhash Engineering College, Garia, Kolkata



## Annual Report 2020-2021

8. Mr. Dinesh Kumar Dash of Parala Maharaja Engineering College, Berhampur, Odisha
9. Mr. Bijoy Goswami of Assam Engineering College, Guwahati, Assam.
10. Dr. Manas Ranjan Nayak of KIT, Bhubaneswar Odisha.

### **B. Activities for the Society:**

#### **Prof. Subir Kumar Sarkar (Co-ordinator)**

A remarkable pertinent approach to detect Bird Flu, Avian influenza at an early stage is adopted by Prof. Subir Kumar Sarkar to control the severe damages in the area of poultry farm and society both economically and medically. Prof. Sarkar has implemented this in the project entitled “Cost effective and manpower efficient "Real-Time Implementation of RFID Based Surveillance System for Poultry Based Industry in Rural/ Urban Region to solve the avian influenza/bird flu problem”, supported by funding from Department of Higher Education, Science & Technology & Biotechnology (Sci. & Tech.), Govt. Of West Bengal. Being its Principal Investigator, he offered a solution of intensive condition monitoring by RFID electronic system of individual birds and timely reporting of data to the poultry farm manager to detect Avian Influenza at a very early stage. A wide variety of symptoms can occur when birds are infected with AI, and birds can often die without any apparent sign of disease. In general, sudden death with high mortality and no preceding signs should raise alarm bells for producers. Early detection and cost effective system design is very important in this aspect. It appears that 'Avian Influenza' detection is the genuine problem whereas RFID has tremendous potential for real life applications. Radio Frequency Identification (RFID) is the most reliable way to electronically identify, data capture, control, track and inventory items using RF communication. One area where it can provide significant advantages is in animal husbandry and the restriction of spreading of diseases or infection among the animals. So RFID based real time system is designed and implemented to provide a simple solution for early detection of Avian Influenza. A software interface using Visual Basic language and SQL server database management is developed to implement the low cost and power efficient RFID based Real time system. Apart from controlling the Avian Influenza, this system provides benefits like regular health monitoring, prevention of the selling of any affected chicken, detailed reporting, portability and easy handling of software. The system can be easily integrated with several poultry farms.

Designing Structured Query Language (SQL) based Visual Studio (front end) and SQL server database (back end) support software program has been considered here to be used in real time to receive data or information from any real world platform and can be stored into main computer system (SSMS ARCHITECTURE). In this case, both the DSQL and SQL server database has been used to execute the front and back end programming of the system. After completion of software implementation, the hardware parts are implemented using RFID Tags,

Readers and other accessories. So that according with these received data, the algorithm can detect bird flu affected chickens at a very early stage. The project work has tremendous commercial viability and potential to be socially accepted for the benefit of mankind. It finds a strong base in rural as well as urban areas especially among schedule caste/ schedule tribe/ other backward caste people with marginal land, small livestock, low annual income and for whom poultry is the only source of livelihood.

## Annual Report 2020-2021

### IMPACT CENTRE

Phone: 033-2457-2536

033-2414-6138

Coordinator: Prof. Samiran Chattopadhyay  
Prof. Rajib Bandyopadhyay (since 20.1. 2021)

E-mail : impactcentre@jadavpuruniversity.in

#### 1. Vision and Mission of the Centre:

- To take up a major drive in computer literacy programme throughout West Bengal.
- To support and promote training activities in the area of Information Technology & Computer Technology in India.
- To arrange lectures, discussions, workshops, seminars, conferences etc. for bridging the digital divide.
- To collaborate with the IT industries and their consortiums to promote activities related to filling up the gap between the needs of the Industry.
- To co-operate with other persons and institutions in attaining the above objects or any of them.
- To develop audio-visual, computer based and other aids for education and training including study and demonstration materials, audio, video and computer software etc.
- To engage in retraining of teachers in private engineering colleges
- To conduct training of computer literacy courses for officers and staff in the University
- To render technical assistance or advice public / private institutions / organizations, Govt. or Semi-Govt. bodies, panchayats, zillaparishads, municipalities, corporations etc. in their endeavours to change their business processes.
- To engage and assist in academic/ developmental/ research/literary/ pedagogic activities as may be deemed appropriate by the governing body.
- To engage in computer training of underprivileged people.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
			No. of Students
<b>One Year PG Diploma Courses</b> Image Editing & Animation Video Editing & 3D Animation Computerized Financial Accounting Finance & Stock Market Hardware & Networking Networking Technologies Software Engineering	<b>1 year each</b>		<b>100</b>
<b>Six Months Certificate Courses</b> MS. net Programming BPO DTP & Image Editing Oracle 10G Express Advance Linux Administration and Scripting	<b>6 months each</b>		

## Annual Report 2020-2021

### INDOLOGY

[Department of Sanskrit]

Coordinator : Prof. Tapan Sankar Bhattacharya  
E-mail : tapans.bhattacharya@jadavpuruniversity.in

The fifty copies (pp. 345-815) of a rare book entitled “Mugdhabodham Vyakaranam” (Vol. II) by Mahamahopadhyaya Shri Bopadeva, edited by Shyamacharana Kaviratna Vidyabaridhi, has been reprinted from the Centre for Indology, under the Department of Sanskrit, Jadavpur University in the month of January, 2021. The editor of this reprinted edition is Prof. Tapan Sankar Bhattacharyya, co-ordinator, the centre for Indology, under the Department of Sanskrit, Jadavpur University.

### KNOWLEDGE BASED SYSTEM

[Department of Electrical Engineering]

Phone: 033-2457-2825

033-2414-6723

Coordinator: prof. Smita Sadhu

E-mail: smita.sadhughosh@jadavpuruniversity.in

#### 1. Vision and Mission of the Centre:

##### Vision:

To grow into a centre of excellence with significant research and development contribution in the advanced Knowledge-Rich domains of control, guidance, estimation and tracking with specific focus on aerospace and transportation systems

##### Mission:

- To nurture post graduate and doctoral students in the chosen domains of interest
- To encourage students to undertake research in areas of national and global importance
- To continue close academic and technical interactions with National R&D labs like those of DRDO and CSIR
- To continue close academic and technical interactions with NIT's, IIT's and the Industry
- To expand academic and technical interactions with other academic institutions (in India and abroad) and the industry

#### 4. Research Activities

##### A. Area of Research Activities:

Design and research in the areas of estimation and filtering techniques, fault detection and identification of nonlinear hybrid systems, real time computer control systems and safety critical and high consequence software, design review and audit of aero engine control system, aircraft stabilization, railway signaling and interlocking systems.

##### B. Major Research Projects:

1. **Robustness Analysis of AFADEC Control Laws Covering Redundancy Management**, sponsored by Gas Turbine Research Establishment, (DRDO, Ministry of Defense), Bengaluru, Rs. 24.78 lakhs.

## Annual Report 2020-2021

Members involved: Prof. Smita Sadhu (PI), Dr. Gautam Sarkar, Mr. Susanta Ray, Prof. T.K.Ghoshal (Hon. Adv.), Prof. K.Majumdar (Hon. Adv.), Prof. P.N.Basu (Hon. Adv.).

2. **Development and Validation of Algorithm for Estimation and Tracking of High Velocity Manoeuvring Targets** sponsored by Program AD, (DRDO, Ministry of Defense), Hyderabad, Rs. 21.53 lakhs. Members involved: Prof. Smita Sadhu (PI), Dr. Gautam Sarkar, Mr. Susanta Ray, Prof. T.K.Ghoshal (Hon. Adv.), Prof. P.N.Basu (Hon. Adv.).
3. **Knowledge Based Design Optimization, Real-Time Adaptation and Configuration Management of Gas Turbine Controller** under RUSA 2.0, Rs. 7.4 lakhs. Members involved: Prof. Smita Sadhu (PI), Dr. Gautam Sarkar, Mr. Susanta Ray.

### D. Research Articles Published in Journals during the year:

#### International Conferences:

1. S. Dasgupta and S. Sadhu, "A Modified Active Anti-Disturbance Control for Time Delay System," *Michael Faraday IET International Summit 2020 (MFIS 2020)*, 2020, pp. 94-99, doi: 10.1049/icp.2021.1145.
2. S. Dasgupta and S. Sadhu, "Decoupling Controller Design for a Multivariable Time Delay System", *2020 IEEE 1st International Conference for Convergence in Engineering (ICCE)*, 2020, pp. 189-194, doi: 10.1109/ICCE50343.2020.9290724.
3. Ankita Muhury, S. Sadhu and T.K. Ghoshal, "Guidance Signal Extraction in an ESA Based RF Seeker by Disturbance Observer," *2<sup>nd</sup> IEEE International Conference on Range Technology (IEEE ICORT 2021)*, 2021.
4. Das and S. Ray, "A Review on Diagnostic Techniques of Bearing Fault and its modeling in Induction Motor," *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 502-505, doi: 10.1109/CALCON49167.2020.9106511.
5. Chatterjee, S. Bhaumik, A. Naskar, N. Mondal, D. Chatterjee and S. Ray, "A Transformer-less Grid Interactive Converter Topology for PV based Micro Generator," *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 497-501, doi: 10.1109/CALCON49167.2020.9106472.
6. Chatterjee, S. Bhaumik, A. Naskar, N. Mondal, D. Chatterjee and S. Ray, "A Transformer-less Grid Interactive Converter Topology for PV based Micro Generator," *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 497-501, doi: 10.1109/CALCON49167.2020.9106472.
7. S. Ghorai and S. Ray, "Revisiting small signal stability analysis techniques in the context of stability study of a two-area multimachine power system," *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 493-496, doi: 10.1109/CALCON49167.2020.9106547.
8. S. Ghorai, D. Majumdar, T. Jash and S. Ray, "PV assisted Fuzzy based EV charge scheduling for demand side energy management: a case study," *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 486-492, doi: 10.1109/CALCON49167.2020.9106509.

### E. Research Articles Published in Edited Volumes during the year:

1. S. Ray, B. Ganguly and D. Dey, "Identification and Classification of Stator Inter-Turn Faults in Induction Motor Using Wavelet Kernel Based Convolutional Neural Network," in *Electric Power Components and Systems*, vol. 48, no. 3, pp. 1421-1432, Dec. 2020.
2. Sourin Bhattacharya, Suddhasatwa Chakraborty and Susanta Ray, "An Approach To Comparative Simulation Of Road Lighting and Estimation Of Associated Quality Parameters", in *Light and Engineering*, vol 29, no. 1, pp. 40-47, February. 2021, DOI: <https://doi.org/10.33383/2020-058>.

### 5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:

#### B. Books/Monographs Edited:

1. Susanta Ray edited the Proceedings of 2020 IEEE Calcutta Conference (CALCON), ISSN/ISBN No. 978-1-7281-4283-8 published by IEEE in 2020.
2. Susanta Ray edited the Proceedings of 2020 IEEE Applied Signal Processing Conference (ASPCON), ISSN/ISBN No. 978-1-7281-6882-1 published by IEEE in 2020.

## Annual Report 2020-2021

### C. Seminar/Workshop/Conference/Symposium Organized by members of the Centre:

1. Mr Susanta Ray was a Coordinator/ Organizing Secretary/equivalent for the following:
2. IEEE Applied Signal Processing Conference (ASPCON) held in Kolkata during 7-9 October, 2020.
3. IEEE Distinguished Lecture on “Energy Efficiency in Smart Building Through IoT Sensor” by Prof. Saifur Rahaman, Joseph Loring Professor & Director, Virginia Tech Advanced Research Institute held in Kolkata during 4 August, 2020.
4. IEEE Distinguished Lecture on “Dynamic Estimation and Control of Power System” by Prof. Bikash C. Pal, Imperial College London held in Kolkata during 20 August, 2020.
5. Faculty Development Programme on “Important Aspects of Electrical Power & Energy held in Kolkata during 30 September- 2 October, 2020.
6. Lecture Series on 3-Phase Induction Motor held in Kolkata during 26-27 August, 2020.
7. Summer Training for budding Engineers (virtual) -Fundamentals of Electrical Engineering for Beginners held in Kolkata during 2 – 23 August, 2020.

### Interaction with other institutions/organizations:

1. Prof Smita Sadhu was a Member of the Technical Program Committee of the 2<sup>nd</sup> IEEE International Conference on Range Technology (IEEE ICORT 2021), held at Integrated Test Range (ITR), DRDO, Chandipur, during 5 – 6 August, 2021.
2. Prof Tapan Kumar Ghoshal was a Member of the Advisory Committee of the 2<sup>nd</sup> IEEE International Conference on Range Technology (IEEE ICORT 2021), held at Integrated Test Range (ITR), DRDO, Chandipur, during 5 – 6 August, 2021.
3. Prof Smita Sadhu chaired a session at the 2<sup>nd</sup> IEEE International Conference on Range Technology (IEEE ICORT 2021), held at Integrated Test Range (ITR), DRDO, Chandipur, during 5 – 6 August, 2021.
4. Prof. T.K. Ghoshal provided Tutorial and Advisory Support to the R&D Engineers of VTOL Aviation India Pvt. Ltd. , Navi Mumbai., Regarding Autopilot Design of Unmanned Aerial Vehicle.
5. Prof. T.K. Ghoshal delivered an Invited Lecture, Orientation programme for the newly admitted first semester students in Electrical Engineering Department of IEST, Shibpur.
6. Prof. T.K. Ghoshal is an External Advisory Member, DRDO sponsored R&D project “Improved Energy Management and Control of a Hybrid UGV for Combat Use”, EE Department, NIT Durgapur.
7. Prof. T.K. Ghoshal was an External expert in the interview for recruitment at the post of Junior Research Fellow (01 post) in a DRDO sponsored R&D project “Improved Energy Management and Control of a Hybrid UGV for Combat Use”.
8. Prof. T.K. Ghoshal is an External Advisor, NIT Durgapur, "Advanced Energy Management and Control of an Unmanned Hybrid Ground Vehicle", Technically approved under Cobotics Project (Lead institution IIT Delhi).
9. Prof. T.K. Ghoshal was a Member, ALS (UAV) Guidance Review Meeting, Tata Advanced Systems Ltd.
10. Prof. T.K. Ghoshal is a Member, Board of Studies, EE Department, MCKV Institute of Engineering, Liluah Howrah.
11. Susanta Ray delivered an Invited Lecture in the Seminar on “Principles of Rotating Machine” at JIS College of Engineering, Kalyani, Nadia, West Bengal, India on Jul 16, 2020.
12. Susanta Ray was Moderator for A Tutorial on “Condition Monitoring” held at the Electrical Engineering Department, Netaji Subhash Engineering College, Kolkata on 4 September, 2020.
13. Susanta Ray delivered an Invited Lecture on “Overview of Circuit Theory” at Gargi Memorial Institute of Technology, Baruipur, Kolkata on 11 October, 2020.
14. Susanta Ray delivered an Invited Lecture on “Overview of Time Response Analysis” at Gargi Memorial Institute of Technology, Baruipur, Kolkata on 13 December, 2020.
15. Susanta Ray delivered an Invited Lecture on "Modern Approach of Electrical Machine" at Pailan College of Management & Technology (PCMT), Kolkata on May 29, 2020.
16. Prof Smita Sadhu acted as External Examiner for evaluation of M.E. thesis at the Department of Electrical Engineering, IEST, Howrah in April, 2020.

## Annual Report 2020-2021

17. Prof Smita Sadhu is an External expert for the Ph.D. Committee of two candidates enrolled at the Department of Electrical Engineering, IEST, Howrah.
18. Prof. Smita Sadhu acted as reviewer for several journals and IEEE conferences.

### 6. Major Achievements of the Centre during the year:

1. Three Post Graduate theses have been awarded under the supervision of the Coordinator. The candidates have utilized the facilities of CKBS.
2. Susanta Ray, Member of the CKBS received the Best Volunteer Award, IEEE Kolkata Section awarded by the IEEE.

## LATIN AMERICAN LITERATURE & CULTURE

[Department of Comparative Literature]

Phone : 033-2457-2140

Coordinator : Prof. Kavita Panjabi

E-mail : sucheta.bhattacharya@jadavpuruniversity.in

1. i) **Seminar with Mr. Federico Salas, the Ambassador of Mexico on February 4, 2020**  
Welcome Session : J.U. VC Professor Suranjan Das & CSLALC Coordinator  
**H.E. Ambassador Federico Salas Lotfe's on "Contemporary Literature & Culture in Mexico"**  
Introduction on behalf of the CSLALC  
Students' presentations  
Concluding Discussions
- ii) **26-28 February, 2020: International Forum on Megacities: Conviviality & Its Limits**  
**Jadavpur University 26-28 February, 2020**
- iii) **Workshop on 'Research Methodologies and Writing Papers in the Field of Latin American Literatures' on Thursday 12 March, 2020."**  
The Co-ordinator, Professor Kavita Panjabi, took voluntary retirement from 1<sup>st</sup> August 2021. Professor Sucheta Bhattacharya, Professor of Comparative Literature became the next Co-ordinator and took charge of the CSLALC from 1<sup>st</sup> August 2021. The new members of the Academic Committee would be confirmed at the next meeting of the CSLALC.

**Annual Report 2020-2021**

**MATHEMATICAL BIOLOGY & ECOLOGY**

**[Department of Mathematics]**

Phone: 033-2457-2743

033-2414-6717

Coordinator: Prof. Nandadulal Bairagi

E-mail: nbairagi.math@jadavpuruniversity.in

**1. Vision and Mission of the Centre:**

**A. Vision:** To be a leading national and international leader in collaborative interdisciplinary research

**B. Mission:** To address the common issues of Mathematical and Biological Sciences

**2. Academic Activities:**

**A. Programmes offered:**

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Special Paper in Mathematical Biology	M.Sc. (Final year)	1 <sup>st</sup> year	NIL
		2 <sup>nd</sup> year ...	10
Mathematical Biology as an elective paper in B.Sc. CBCS system	One	Final B.Sc.	40

**3. Faculty Members in the Centre :**

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
4	NIL	1	5

**4. Research Activities:**

**A. Areas of Research Activities:**

Mathematical Biology (Broad Area)

In particular, mathematical ecology, epidemiology, herbivore induced plant defence, autoregressive neural network, immune disorder diseases, systems biology

**B. Major Research Projects :**

Title of the Project	Type (Departmental/ Individual)	Name of the Principal Investigator	Funding Agency	Duration
Anatomy of COVID-19 transmission dynamics: A modelling and computational approach from Indian perspective	Individual	<b>Prof. Nandadulal Bairagi</b>	SERB	2020-2021
Dynamics preserving discretization technique for nonlinear system of differential equations.	Individual	<b>Prof. Nandadulal Bairagi</b>	SERB	2018-2021

## Annual Report 2020-2021

Modelling and analysis of stochastic HIV infection with linear and nonlinear incidence	Individual	<b>Prof. Nandadul Bairagi</b>	CSIR	2018-2021
Exploring uncertainties for production bottlenecks of biodiesel in SCEM: Deterministic and Stochastic studies with dynamic optimization	Individual	<b>Prof. Priti Kumar Roy</b>	SERB	2019-2022

### C. Doctoral Research Activities :

Number of students awarded Ph.D during the year	Number of Ph.D students registered in the Centre
4	4

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No./Article No., Year of publication)

1. Majumder, A., Adak, D. **Bairagi, N.:** *Persistence and extinction of species in a disease-induced ecological system under environmental stochasticity.* **Physical Review E**, 103, Doi: 10.1103/PhysRevE.103.032412, **2021.**
2. Majumder, A., Adak, D. **Bairagi, N.:** *Persistence and extinction criteria of Covid-19 pandemic: India as a case study,* **Stochastic Analysis and Applications**, Doi: 10.1080/07362994.2021.1894172, **2021.**
3. Chakraborty, B., Baek, H., **Bairagi, N.:** *Diffusion-induced regular and chaotic patterns in a ratio-dependent predator-prey model with fear factor and prey refuge.* **Chaos**, Doi: 10.1063/5.0035130, **2021.**
4. Paul, A., Anand, R., Karmakar, S. P., Rawat, S., **Bairagi, N.**, Chatterjee, S.: *Exploring gene knockout strategies to identify potential drug targets using genome-scale metabolic models.* **Scientific Reports**, 11(1), 1-13, **2021.**
5. Gupta, A. Kumar, A. Anand, R., **Bairagi, N.**, Chatterjee, S.: *Genome scale metabolic model driven strategy to delineate host response to Mycobacterium tuberculosis infection.* **Molecular Omics**, Doi: 10.1039/D0MO00138D, **2021.**
6. Klionsky, D. J., Abdel-Aziz, A. K., Abdelfatah, S., Abdellatif, M., Abdoli, A., **Bairagi, N.**, ... & Bartek, J. *Guidelines for the use and interpretation of assays for monitoring autophagy (4<sup>th</sup> Edition).* **Autophagy**, 17(1), 1-382, **2021.**
7. Adak, D., **Bairagi, N.**, Hakl, R.: *Accounting for multi-delay effects in an HIV-1 infection model with saturated infection rate, recovery and proliferation of host cells.* **BIOMATH**, 9(2), 2012297, **2020.**
8. Sarmah, D. K., **Bairagi, N.**, Chatterjee, S.: *Tracing the footsteps of autophagy in computational biology.* **Briefings in Bioinformatics**, Doi.org/10.1093/bib/bbaa286, **2020.**
9. Paul, A., Chatterjee, S., **Bairagi, N.:** *Covid-19 transmission dynamics during the unlock phase and significance of testing.* **Journal of Vaccines & Vaccination**, 11(6), 1000433, **2020.**
10. Saha, S., Mishra, A., Dana, S. K., Hens, S., **Bairagi, N.:** *Infection spreading and recovery in a square lattice.* **Physical Review E**, 102(5), doi: 10.1103/PhysRevE.102.052307, **2020.**
11. Adak, D., Majumder, A. **Bairagi, N.:** *Mathematical perspective of Covid-19 pandemic: disease extinction criteria in deterministic and stochastic models.* **Chaos, Solitons & Fractals**, doi.org/10.1016/j.chaos.2020.110381, **2020.**



## Annual Report 2020-2021

12. Majumder, A., Bala, T., Adak, D., N'Guerekata, G. M., **Bairagi, N.**: *Evaluating the current epidemiological status of Italy: Insights from a stochastic epidemic model.* **Nonlinear Studies**, 27(4), 1169-1177, **2020**.
13. Mondal, C., Majumder, A., Adak, D., **Bairagi, N.**: *Mitigating the transmission of infection and death due to SARS CoV-2 through non-pharmaceutical interventions and repurposing drugs.* *epidemic model.* **ISA Transaction**, doi.org/10.1016/j.isatra.2020.09.015, **2020**.
14. Maji C, **Kesh D**, Mukherjee D., The effect of predator density dependent transmission rate in an eco-epidemic model. *Differential Equations and Dynamical Systems*, 28, 479 -493, **2020**.
15. Maji C, Mukherjee D, Kesh D., Study of a fractional-order model of chronic wasting disease, *Mathematical Methods in the Applied Sciences*, 43(7), 4669 – 4682, **2020**.
16. MondalR, **Kesh D**, Mukherjee D., Dynamical Analysis of a Fractional Order Rosenzweig-MacArthur Model Incorporating Herbivore Induced Plant Volatile, *Chinese Journal of Physics*, 68, 258-269, **2020**.
17. MondalR, Saha S, **Kesh D**, Mukherjee D., Basin Transition and Alternative States: Role of Multi-species Herbivores-Induced Volatile in Plant–Insect Interactions, *Bulletin of Mathematical Biology*, 83:100, <https://doi.org/10.1007/s11538-021-00930-3>, **2020**.
18. A. K. Roy, M. Nelson, **Roy Priti Kumar**: A control-based mathematical study on psoriasis dynamics with special emphasis on IL – 21 and IFN –  $\gamma$  interaction network, *Mathematical Methods in Applied Sciences*, DOI: 10.1002/mma.7635, **2021**.
19. Banerjee A, Chakraborty M, Bandyopadhyay G, **Roy Priti Kumar**, Ray S: Forecasting environmental factors and zooplankton of Bakreswar reservoir in India using time series model, *Ecological Informatics*, Elsevier, Volume: 60, Pages: 1 – 37. DOI: 10.1016/j.ecoinf.2020.101157, **2020**.
20. **Roy Priti Kumar**, A. K. Roy, E. N. Khailov, F A Basir, É. V. Grigorieva: A Model of the Optimal Immunotherapy of Psoriasis by Introducing IL - 10 and IL - 22 Inhibitor, *Journal of Biological Systems*, Vol. 28, No. 03, pp. 609-639, <https://doi.org/10.1142/S0218339020500084>, **2020**.
21. Cao Xianbing, Basir F. A., Xue-Zhi Li, **Roy Priti Kumar**, Impact of combined therapy in HIV-1 Treatment: A double impulsive Approach, *International Journal of Applied Computational Mathematics*, DOI: 10.1007/s40819-020-00861-y, 2020, **2020**.
22. Koushik Garain, Krishna Pada Das, ParthaSarathi Mandal, **Santosh Biswas**. Density dependent mortality and weak Allee effect control chaos-conclusion drawn from a tri-trophic food chain with prey refugia.; *NONLINEAR STUDIES* **27 (2)** :529-549, **2020**.
23. Saddam Mollah, **Santosh Biswas**. Effect of awareness program on diabetes mellitus: deterministic and stochastic approach. *Journal of Applied Mathematics and Computing* **66**:61–86, **2021**.
24. Mrinmoy Sardar, **Santosh Biswas**, Subhas Khajanchi. The impact of distributed time delay in a tumor-immune interaction system. *Chaos, Solitons and Fractals* **142**, 110483, **2021**.

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

Banerjee A, Ray S, **Roy Priti Kumar**: Concepts of Robustness and Ecosystem Health – with case studies from the Indian context, *Biodiversity and Livelihood: Lessons from Community Research in India*, Bentham Science publishers ;( Eds: Oommen V. Oommen, K. P. Laladhas, Erach Bharucha) Chapter: 8; Pages: 105 – 120; ISBN: 978-981-14-8215-1 (online); DOI: 10.2174/97898114821511200101, 2020.

### H. Research Collaboration with other Departments/Institutes/Industries:

Name of the Teacher(s)	Name of the Collaborator(s)	Collaborating Dept./Inst./Indus.	Nature of Collaboration	Duration
Prof. Nandadulal Bairagi	Dr. Samrat Chatterjee	Translation Health Science and Technology Institute (A DBT Institute), Faridabad	R & D	Throughout the year

**Annual Report 2020-2021**

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year**

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Prof. Nandadulal Bairagi</b>	Invited talk	Two-day National Webinar on Mathematical Perspective of COVID-19 Outbreak: Predictions, Precautions & Preventive Measures	Sidho-Kanho-Birsha University,	11-12 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	National Webinar on Mathematics: Present Scenario	Guru Nanak Khalsa College, Haryana,	13 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	National Webinar on Mathematical Modelling Perspective for Prediction of Spread & Control Strategies for Covid-19	Jiwaji University, Gwalior	24 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	National level Webinar on Covid-19	Vidyasagar College for Women, Kolkata	29 June, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	International Web Conference on Science, Humanities and Social Science	Maha Raja Bir Bikram University, Agartala, Tripura	9-10 July, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	Two-Days National Webinar on Advances in Mathematics and Its Applications	Panskura Banamali College, Purba Medinipur	28-29 August, 2020
<b>Prof. Nandadulal Bairagi</b>	Invited talk	One Day National Level Webinar on Mathematical Modelling and Its Real-World Applications	Hoogly Women's' College, Hooghly	8 September, 2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
---------------------------------	---------------------------	---	--------------	-----------------

## Annual Report 2020-2021

<b>Dr. Santosh Biswas</b>	Effect of multiple delays on cannibalistic eco - epidemiological model with Beddington-DeAngelis functional response	International Web Conference on Emerging Areas of Mathematics and Mathematical Sciences	Calcutta Mathematical Society, Kolkata	12-14 December, 2020
<b>Dr. Santosh Biswas</b>	Effect of awareness program on Mycobacterium ulcerans infection in human - a model based theoretical study	International Conference MSAST 2020	Institute IMBIC, Kolkata, India	21-23 December, 2020

**7. Extension Activities of the Centre during the year:**

- A. Linkages with other institutes/ industries for internship / on-job training/ project work etc.**  
 Translation Health Science and Technology Institute (THSTI), Faridabad, has renewed the MOU with our Centre for continuing research activities for another five years.

**8. Students Progression during the year:**

**A. Progression to Higher Studies:**

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
3	Department of Mathematics	Ph.D.	JU (one), THSTI (one) and IEST (one)

**B. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
NET	2
GATE	3

## Annual Report 2020-2021

### MICROPROCESSOR APPLICATIONS FOR TRAINING EDUCATION AND RESEARCH

[Department of Computer Science and Engineering]

Phone: 033-2457-2367/2407

Coordinator: Prof. Mita Nasipuri

E-mail: mita.nasipuri@jadavpuruniversity.in

#### 2. Academic Activities:

##### A. Programmes offered:

Sl No.	Name of the Course (short term)	Duration of the course	No. of students
1	Introduction to Linux and C Programming	88hrs.	30
2	Object Oriented Programming with C++ and JAVA	70 hrs.	30
3	Python Programming	40hrs.	30
4	Android App Development	40hrs.	30

#### 3. Faculty Members in the Centre:

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
7	2	0	9

#### 4. Research Activities:

##### A. Areas of Research Activities: (Broad Areas)

Machine Learning, Artificial Intelligence, Pattern Recognition, Computational Intelligence, Bioinformatics, Video and Image Processing, Face Recognition, Medical Image Analysis, Cloud Computing, Internet of Things, Soft computing, Data Mining, Wireless and Mobile Computing, Wireless Sensor Networks, Security, Distributed Computing, Social Network Analysis, High Performance Computing.

##### B. Major Research Projects:

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Development of some analytical tools for analysis of large-scale protein-protein interaction networks	Individual	<b>Subhadip Basu</b>	DBT	2017-2021
Multi-lingual Text Analytics for Camera-based Handheld Devices.	Individual	<b>Ram Sarkar</b>	SERB, DST	2017-2020
Participatory and real time pollution monitoring system for smart city	Individual	<b>Sarbani Roy</b>	DST, WB	2018-2021
Identifying Important Factors Impacting the Spread and Mortality Rate of COVID-19 Using Biclustering Approach	Individual	<b>Susmita Ghosh</b>	DST SERB under MATRICS Special Call	2020-2021
A Multi Modal Approach to Medical Diagnosis	Individual	<b>Susmita Ghosh</b>	DST	2020-2022

## Annual Report 2020-2021

Embedding Deep and Transfer Learning			(ASEAN-India)	
Development of object detection techniques from degraded complex video sequences due to dynamic variations of scenes by different atmospheric conditions for security and surveillance	Individual	<b>Debotosh Bhattacharjee</b>	DRDO	2019-2021
Development of a computer-assisted diagnosis system for segmenting and detecting abnormalities and disease diagnosis	Individual	<b>Debotosh Bhattacharjee</b>	DST	2019-2021
Automatic Generation of Cytological Images to Augment Data for Diagnosis of Ductal Carcinoma Using Deep Learning	Individual	<b>Nibaran Das</b>	SERB under DST (Govt. Of India)	2019-2022

### C. Doctoral Research Activities:

Number of students awarded Ph. D during the year	Number of Ph. D students registered in the Centre
5	33

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

1. Grzegorz Bokota, Jacek Sroka, **Subhadip Basu**, Nirmal Das, Pawel Trzaskoma, Yana Yushkevich, Agnieszka Grabowska, Adriana Magalska, Dariusz Plewczynski, "PartSeg: a tool for quantitative feature extraction from 3D microscopy images for dummies", BMC bioinformatics 22 (1), 1-15, 2021.
2. Indra Narayan Dutta, Neelotpal Chakraborty, Ayatullah Faruk Mollah, **Subhadip Basu**, **Ram Sarkar**, "BOB: a bi-level overlapped binning procedure for scene word binarization", Multimedia Tools and Applications 80 (5), 7609-7635, 2021.
3. S. Malakar, **R. Sarkar**, **Subhadip Basu**, **Mahantapas Kundu**, **M. Nasipuri**, "An image database of handwritten Bangla words with automatic benchmarking facilities for character segmentation algorithms", Neural Comput. Appl., 33, pages449-468(2021).
4. Neelotpal Chakraborty, Soumyadeep Kundu, Sayantan Paul, Ayatullah Faruk Mollah, **Subhadip Basu**, **Ram Sarkar**, "Language identification from multi-lingual scene text images: a CNN based classifier ensemble approach", Journal of Ambient Intelligence and Humanized Computing, 12, 7997-8008 (2021)
5. Shaswata Saha, Neelotpal Chakraborty, Soumyadeep Kundu, Sayantan Paul, Ayatullah Faruk Mollah, **Subhadip Basu**, **Ram Sarkar**, "Multi-lingual scene text detection and language identification", Pattern Recognition Letters 138, 16-22, 2020.
6. **Subhadip Basu**, U Maulik, U Pal, "Editorial: Special Issue on Deep Learning for Video Text Analysis", Pattern Recognition Letters 138, 305-307, 2020.

## Annual Report 2020-2021

7. Urban, Paulina, Vahid Rezaei Tabar, Michał Denkwicz, Grzegorz Bokota, Nirmal Das, **Subhadip Basu**, and Dariusz Plewczynski. "The Mixture of Autoregressive Hidden Markov Models of Morphology for Dendritic Spines during Activation Process". *Journal of Computational Biology* (2020), 27 (9), 1471-1485.
8. A.K. Halder, S.S. Bandyopadhyay, P. Chatterjee, **M. Nasipuri**, D. Plewczynski, **S. Basu**, "JUPPI: A multi-level feature based method for PPI prediction and a refined strategy for performance assessment", *IEEE/ACM Transactions on Computational Biology & Bioinformatics*, *in press* (2020). <https://doi.org/10.1109/tcbb.2020.3004970>.
9. Anup Kumar Halder, Michał Denkwicz, Kaustav Sengupta, **Subhadip Basu**, Dariusz Plewczynski, "Aggregated Network Centrality Shows Non-Random Structure of Genomic and Proteomic Networks", *Methods*, Elsevier, Volumes 181–182, Pages 5-14, October 2020.
10. Safikureshi Mondal, Anwesha Basu, Nandini Mukherjee (2020), Building a trust-based doctor recommendation system on top of multilayer graph database. *Journal of Biomedical Informatics*, 110: 103549.
11. Anindita Sarkar Mondal, Sarmistha Neogy, Nandini Mukherjee, Samiran Chattopadhyay (2020), Performance analysis of an efficient object-based schema oriented data storage system handling health data. *Innov. Syst. Softw. Eng.* 16(1): 63-77.
12. Atrayee Gupta and Nandini Mukherjee, Handling uncertainty in eHealth sensors using fuzzy system modeling, *Health and Technology Journal*, volume 10, number 6, pages 1533–1554, 2020, Springer Berlin Heidelberg
13. Sunanda Bose and Nandini Mukherjee, SenSchedule: Scheduling Heterogeneous Periodic Sensing Resources with Non Uniform Performance in IoT, *IEEE Transactions on Services Computing*, 2020. (Early Access Article)
14. Atrayee Gupta, Ankita Nag and Nandini Mukherjee, Handling Errors in eHealth Sensors using Interval Mapping and Fuzzy Modeling, *IEEE Sensors Journal*, 2021 (Early Access Article)
15. C. Dey, R. Bose, K. K. Ghosh, S. Malakar, **R. Sarkar**, "LAGOA: Learning Automata based Grasshopper Optimization Algorithm for Feature Selection in Disease Datasets", *Journal of Ambient Intelligence and Humanized Computing*, Springer, 2021, [doi.org/10.1007/s12652-021-03155-3](https://doi.org/10.1007/s12652-021-03155-3)
16. S. Shaw, S. Ahmed, S. Malakar, L. Garcia-Hernandez, A. Abraham, **R. Sarkar**, "Hybridization of Ring Theory-based Evolutionary Algorithm and Particle Swarm Optimization to solve Class Imbalance Problem", *Complex & Intelligent Systems*, Springer, Vol. 7, pp. 2069-2091, 2021, [doi.org/10.1007/s40747-021-00314-z](https://doi.org/10.1007/s40747-021-00314-z)
17. D. Banerjee, P. Bhowal, S. Malakar, **R. Sarkar**, "A Two-tier Ensemble Approach for Writer Dependent Online Signature Verification", *Journal of Ambient Intelligence and Humanized Computing*, Springer, 2021, [doi.org/10.1007/s12652-020-02872-5](https://doi.org/10.1007/s12652-020-02872-5)
18. S. K. Ghosal, S. Mukhopadhyay, S. Hossain, **R. Sarkar**, "Exploiting Laguerre Transform in Image Steganography", *Computers and Electrical Engineering*, Elsevier, Vol. 89, 2021, [10.1016/j.compeleceng.2020.106964](https://doi.org/10.1016/j.compeleceng.2020.106964)
19. S. Majumder, S. Ghosh, S. Malakar, **R. Sarkar**, **M. Nasipuri**, "A voting-based technique for word spotting in handwritten document images", *Multimedia Tools and Applications*, Springer, Vol. 80, pp. 12411-12434, 2021, [10.1007/s11042-020-10363-0](https://doi.org/10.1007/s11042-020-10363-0)
20. S. Mukhopadhyay, S. Hossain, S. K. Ghosal, **R. Sarkar**, "Secured Image Steganography based on Catalan Transform", *Multimedia Tools and Applications*, Springer, Vol. 80, pp. 14495-14520, 2021, [10.1007/s11042-020-10424-4](https://doi.org/10.1007/s11042-020-10424-4)
21. S. S. Sarkar, K. H. Sheikh, A. Mahanty, K. Mali, A. Ghosh, **R. Sarkar**, "A Harmony Search Based Wrapper-Filter Feature Selection Approach for Microstructural Image Classification", *Integrating Materials and Manufacturing Innovation*, Springer, Vol. 10, pp. 1-19, 2021, [0.1007/s40192-020-00197-x](https://doi.org/10.1007/s40192-020-00197-x)
22. A. Basu, R. Mondal, S. Bhowmik, **R. Sarkar**, "U-Net vs Pix2Pix: A Comparative Study on Degraded Document Image Binarization", *Journal of Electronic Imaging*, SPIE, Vol. 29, Issue 6, 2020, [10.1117/1.JEI.29.6.063019](https://doi.org/10.1117/1.JEI.29.6.063019)

23. B. Ray, A. Garain, **R. Sarkar**, “An Ensemble based Hotel Recommender System using Sentiment Analysis and Aspect Categorization of Hotel Reviews”, *Applied Soft Computing, Elsevier*, Vol. 98, 2021, 10.1016/j.asoc.2020.106935
24. K. K. Ghosh, R. Guha, S. K. Bera, N. Kumar, **R. Sarkar**, “S-Shaped versus V-Shaped Transfer Functions for Binary Manta Ray Foraging Optimization in Feature Selection Problem”, *Neural Computing and Applications, Springer*, Vol. 33, pp. 11027-11041, 2021, doi.org/10.1007/s00521-020-05560-9
25. S. Ahmed, K.K. Ghosh, L. Garcia-Hernandez, A. Abraham, **R. Sarkar**, “Improved coral reefs optimization with adaptive  $\beta$ -hill climbing for feature selection”. *Neural Computing & Applications*, Vol. 33, pp. 6467–6486, 2021. <https://doi.org/10.1007/s00521-020-05409-1>
26. S.K. Bera, S. Ghosh, S. Bhowmik, **R. Sarkar**, **M. Nasipuri** “A non-parametric binarization method based on ensemble of clustering algorithms”, *Multimed Tools and Applications*, Vol. 80, pp. 7653–7673, 2021. <https://doi.org/10.1007/s11042-020-09836-z>
27. S. Bhowmik, S. Kundu, **R. Sarkar**, “BINYAS: A Complex Document Layout Analysis System”, *Multimedia Tools and Applications*, 80, pp. 8471–8504, 2021, <https://doi.org/10.1007/s11042-020-09832-3>
28. S.K. Ghosal, A. Chatterjee, **R. Sarkar**, “Image steganography based on Kirsch edge detection”, *Multimedia Systems* Vol. 27, pp. 73–87, 2021. <https://doi.org/10.1007/s00530-020-00703-3>
29. R. Bhattacharya, S. Malakar, S. Ghosh, S. Bhowmik, **R. Sarkar**, “Understanding contents of filled-in Bangla form images”, *Multimedia Tools and Applications*, Vol. 80, pp. 3529–3570, 2021. <https://doi.org/10.1007/s11042-020-09751-3>
30. N. Chakraborty, A. Chatterjee, P.K. Singh, A. F. Mollah, **R. Sarkar**, “Application of daisy descriptor for language identification in the wild”, *Multimedia Tools and Applications*, Vol. 80, pp. 323–344, 2021. <https://doi.org/10.1007/s11042-020-09728-2>
31. A. Banerjee, P. K. Singh and **R. Sarkar**, "Fuzzy Integral-Based CNN Classifier Fusion for 3D Skeleton Action Recognition," in *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 31, no. 6, pp. 2206-2216, 2021, doi: 10.1109/TCSVT.2020.3019293
32. Sabyasachi Chatterjee, Prabir Banerjee, **Mita Nasipuri**, “Enhancing localization accuracy of collaborative cognitive radio users by internal noise mitigation”, *Telecommunication Systems*, vol. 76, issue 2, pp. 187-206, 2021
33. R. Das, A.I. Middy, A.I., **S. Roy**, “High granular and short term time series forecasting of PM 2.5 air pollutant - a comparative review”, *Artificial Intelligence Review*, Springer, (March 2021). <https://doi.org/10.1007/s10462-021-09991-1>
34. S. Banerjee, **S. Roy**, S. Khatua, “Efficient resource utilization using multi-step-ahead workload prediction technique in cloud”, *Journal of Supercomputing*, Springer, 77, 10636–10663 (March 2021). <https://doi.org/10.1007/s11227-021-03701-y>
35. M. Deb, **S. Roy**, “Enhanced-Pro: A New Enhanced Solar Energy Harvested Prediction Model for Wireless Sensor Networks”, *Wireless Personal Communications*, Springer, 117, 1103–1121 (March 2021). <https://doi.org/10.1007/s11277-020-07913-y>
36. S. Bhattacharya, S. Sinha, **S. Roy**, A. Gupta, “Towards finding the best-fit distribution for OSN data”, *Journal of Supercomputing*, Springer, 76, 9882–9900 (December 2020). <https://doi.org/10.1007/s11227-020-03232-y>
37. A. Ray, C. Chowdhury, S. Mallick, S. Mandol, S. Paul, **S. Roy**, “Designing Energy Efficient Strategies Using Markov Decision Process for Crowd-Sensing Applications”, *Mobile Networks and Applications*, Springer, 25, 932–942 (December 2020). <https://doi.org/10.1007/s11036-020-01522-6>
38. A. I., Middy, **S. Roy**, J. Dutta, R. Das, “JUSense: A Unified Framework for Participatory-based Urban Sensing System”, *Mobile Networks and Applications*, Springer, 25, 1249–1274 (August 2020). <https://doi.org/10.1007/s11036-020-01539-x>
39. H. N. Somehsaraei, **S. Ghosh**, S. Maity, P. Pramanik, S. De, and M. Assadi, “Automated Data Filtering Approach for ANN Modeling of Distributed Energy Systems: Exploring the Application of Machine Learning”, *Energies*, 13(14):3750, July 2020. DOI: 10.3390/en13143750.
40. R. Roy, **S. Ghosh** and A. Ghosh, “Clinical Ultrasound Image Standardization using Histogram Specification”, *Computers in Biology and Medicine*, vol. 120, pp. 1037-1046, 2020.

## Annual Report 2020-2021

41. Sourav Pramanik, **Debotosh Bhattacharjee**, **Mita Nasipuri**, Ondrej Krejcar, “LINPE-BL: A Local Descriptor and Broad Learning for Identification of Abnormal Breast Thermograms”, IEEE Transactions on Medical Imaging, 2021.
42. Asish Bera, **Debotosh Bhattacharjee**, Hubert P. H. Shum, “Two-stage human verification using HandCAPTCHA and anti-spoofed finger biometrics with feature selection”, Expert Systems with Applications,” Vol. 171, 2021.
43. Asish Bera, Ratnadeep Dey, **Debotosh Bhattacharjee**, **Mita Nasipuri**, and Hubert P. H. Shum, “Spoofing detection on hand images using quality assessment”, Multimedia Tools and Applications, Vol 80, pages28603–28626, 2021.
44. Saikat Chakraborty, Riktim Mondal, Pawan Kumar Singh, **Ram Sarkar**, and **Debotosh Bhattacharjee**, “Transfer learning with fine tuning for human action recognition from still images”, Multimedia Tools and Applications, Vol 80, pp. 20547–20578, 2021.
45. Subhadeep Koley, Hiranmoy Roy, **Debotosh Bhattacharjee**, “Gammation binary pattern of Shearlet coefficients (GBPSC): An illumination-invariant heterogeneous face descriptor, Pattern Recognition Letters, Vol. 145, Pages 30-36, 2021.
46. Ritam Guha, Ali Hussain Khan, Pawan Kumar Singh, **Ram Sarkar**, and **Debotosh Bhattacharjee**, “CGA: a new feature selection model for visual human action recognition”, Neural Computing and Applications, Vol. 33, pp. 5267–5286, 2021.
47. Koushik Dutta, **Debotosh Bhattacharjee**, **Mita Nasipuri**, Ondrej Krejcar, “Complement component face space for 3D face recognition from range images”, Applied Intelligence 51 (4), 2500–2517, 2021.
48. Prami Ghosh, **Debotosh Bhattacharjee**, **Mita Nasipuri**, “Dynamic Diet Planner: A Personal Diet Recommender System Based on Daily Activity and Physical Condition”, IRBM, Elsevier, 2021.
49. Prami Ghosh, **Debotosh Bhattacharjee**, **Mita Nasipuri**, “Passive Auto Focusing of Pathological Microscope with Intelligent Field Image Collection Mechanism”, Journal of Medical Systems, 45(2):25, 2021. DOI: 10.1007/s10916-020-01688-2. PMID: 33452582.
50. Arindam Kar, Sourav Pramanik, Arghya Chakraborty, **Debotosh Bhattacharjee**, Edmond S. L. Ho, and Hubert P. H. Shum, “LMZMPM: Local Modified Zernike Moment Per-unit Mass for Robust Human Face Recognition”, IEEE Transactions on Information Forensics and Security, Vol. 16, pp. 495-509, 2021.
51. Debapriya Banik, Kaushiki Roy, **Debotosh Bhattacharjee**, **Mita Nasipuri**, “Polyp-Net: A Multi-model Fusion Network for Polyp Segmentation,” IEEE Transactions on Instrumentation and Measurement, Vol. 70, pp. 1-12, 2021.
52. Shawli Bardhan, Satyabrata Nath, Tathagata Debnath, **Debotosh Bhattacharjee**, Mrinal Kanti Bhowmik, “Designing of an inflammatory knee joint thermogram dataset for arthritis classification using deep convolution neural network”, Quantitative InfraRed Thermography Journal, 2020, DOI: 10.1080/17686733.2020.1855390.
53. Kaushiki Roy, Cody W Lewis, Gordon Chan, **Debotosh Bhattacharjee**, “Automated classification of mitotic catastrophe by use of the centromere fragmentation morphology”, Biochemistry and Cell Biology, Vol. 99(2), pp. 261-271, 2021.
54. Debadyuti Mukherjee, Riktim Mondal, Pawan Kumar Singh, **Ram Sarkar**, **Debotosh Bhattacharjee**, “EnsemConvNet: a deep learning approach for human activity recognition using smartphone sensors for healthcare applications”, Multimedia Tools and Applications, Vol. 79, pp. 31663–31690, 2020.
55. Koushik Dutta, **Debotosh Bhattacharjee**, **Mita Nasipuri**, “SpPCANet: a simple deep learning-based feature extraction approach for 3D face recognition”, Multimedia Tools and Applications, Vol. 79, pp. 31329–31352, 2020,
56. Gitanjali Mandal, **Debotosh Bhattacharjee**, “Learning-Based Single Image Super-Resolution with Improved Edge Information,” Pattern Recognition and Image Analysis, 30 (3), 391-400, 2020.
57. Swarnendu Ghosh, **Nibaran Das**, Priyam sarkar and **Mita Nasipuri**, JU-VNT: a multi-spectral dataset of indoor object recognition using visible, near-infrared and thermal spectrum. Multimed Tools Appl 80, 17807–17826 (2021). <https://doi.org/10.1007/s11042-020-10302-z>
58. Bodhisatwa Mandal, Ritesh Sarkhel, Swarnendu Ghosh, **Nibaran Das**, **Mita Nasipuri**, Two-phase Dynamic Routing for Micro and Macro-level Equivariance in Multi-Column Capsule Networks in Pattern Recognition, 109, 107595:1-12, (2021), <https://doi.org/10.1016/j.patcog>



## Annual Report 2020-2021

59. Kalpita Dutta, Malyaban Bal, Arpita Basak, Swarnendu Ghosh, **Nibaran Das, Mahantapas Kundu and Mita Nasipuri**, “Multi scale mirror connection based encoder decoder network for text localization”, *Pattern Recognit. Lett.*, vol. 135, pp. 64–71, 2020, doi: <https://doi.org/10.1016/j.patrec.2020.04.002>.
60. Riya Guha, **Nibaran Das, Mahantapas Kundu, Mita Nasipuri**, and K. C. Santosh, “DevNet: An Efficient CNN Architecture for Handwritten Devanagari Character Recognition”, *Int. J. Pattern Recognit. Artif. Intell.*, 34( 12), 2052009 (2020), <https://doi.org/10.1142/S0218001420520096>.
61. Animesh Singh, Ritesh Sarkhel, **Nibaran Das, Mahantapas Kundu and Mita Nasipuri**, A Skip-Connected Multi-column Network for Isolated Handwritten Bangla Character and Digit Recognition. *in Sensing and Imaging* 21, 28 (2020). <https://doi.org/10.1007/s11220-020-00288-1>
62. Soumya Ukil, Swarnendu Ghosh, Sk Md Obaidullah, K. C. Santosh, Kaushik Roy, and **Nibaran Das**, Improved word-level handwritten Indic script identification by integrating small convolutional neural networks. *Neural Comput & Applic* 32, 2829–2844 (2020). <https://doi.org/10.1007/s00521-019-04111-1>
63. Arnab Banerjee, **Nibaran Das**, and K. C. Santosh, Weber local descriptor for image analysis and recognition: a survey. *Vis Comput* (2020). <https://doi.org/10.1007/s00371-020-02017-x>

### E. Research Articles Published in Edited Volumes during the year:

(Name of authors, Title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)

1. R. Mondal, D. Mukhopadhyay, S. Barua, P. K. Singh, **R. Sarkar, D. Bhattacharjee**, “A study on smartphone sensor based Human Activity Recognition using deep learning approaches”, *Handbook of Computational Intelligence in Biomedical Engineering and Healthcare*, Elsevier, eds. By J. Nayak et al. pp. 343-369, 2021, ISBN: 978-0-12-822260-7
2. M. Biswas, S. Rahaman, S. Kundu, P. K. Singh, **R. Sarkar** (2021) Spoken Language Identification of Indian Languages Using MFCC Features. In: Kumar P., Singh A.K. (eds) *Machine Learning for Intelligent Multimedia Analytics. Studies in Big Data*, vol 82. Springer, Singapore. [https://doi.org/10.1007/978-981-15-9492-2\\_12](https://doi.org/10.1007/978-981-15-9492-2_12), ISBN: 978-981-15-9491-5 (Print)
3. R. Bhattacharya, S. Malakar, F. Schwenker, **R. Sarkar** (2021) Fuzzy-Based Pseudo Segmentation Approach for Handwritten Word Recognition Using a Sequence to Sequence Model with Attention. In: Del Bimbo A. et al. (eds) *Pattern Recognition. ICPR International Workshops and Challenges. ICPR 2021. Lecture Notes in Computer Science*, vol 12662. Springer, Cham. [https://doi.org/10.1007/978-3-030-68790-8\\_45](https://doi.org/10.1007/978-3-030-68790-8_45), ISBN: 978-3-030-68789-2 (Print)
4. R. Chakraborty, S. Saha, A. Bhattacharyya, S. Sen, **R. Sarkar**, K. Roy. (2021) Recognition of Online Handwritten Bangla and Devanagari Basic Characters: A Transfer Learning Approach. In: Singh S.K., Roy P., Raman B., Nagabhushan P. (eds) *Computer Vision and Image Processing. CVIP 2020. Communications in Computer and Information Science*, vol 1377. Springer, Singapore. [https://doi.org/10.1007/978-981-16-1092-9\\_45](https://doi.org/10.1007/978-981-16-1092-9_45), ISBN: 978-981-16-1091-2 (Print)
5. A. Kumar, R. Garg, A. Anand, **R. Sarkar**. (2021) An Improved Salp Swarm Algorithm Based on Adaptive  $\beta$ -Hill Climbing for Stock Market Prediction. In: Thampi S.M., Piramuthu S., Li KC., Berretti S., Wozniak M., Singh D. (eds) *Machine Learning and Metaheuristics Algorithms, and Applications. SoMMA 2020. Communications in Computer and Information Science*, vol 1366. Springer, Singapore. [https://doi.org/10.1007/978-981-16-0419-5\\_9](https://doi.org/10.1007/978-981-16-0419-5_9), ISBN: 978-981-16-0418-8 (Print)
6. Shib Sankar Bhowmick, **Debotosh Bhattacharjee**; “MicroRNA-Based Cancer Classification Using Feature Selection Wrapper”; *Advanced Computing and Systems for Security*, volume 14, pages 197-209, Springer, Singapore, 2021
7. Sourav Pramanik, **Debotosh Bhattacharjee, Mita Nasipuri**; “Breast Abnormality Detection Using Texture Feature Extracted by Difference-Based Variable-Size Local Filter (DVLFF)”; *Proceedings of Research and Applications in Artificial Intelligence*, pages 111-120, Springer, Singapore, 2021
8. Debapriya Banik, **Debotosh Bhattacharjee**; “Mitigating Data Imbalance Issues in Medical Image Analysis”; *Data Preprocessing, Active Learning, and Cost Perceptive Approaches for Resolving Data Imbalance*, pages 66-89, IGI Global, 2021

## Annual Report 2020-2021

9. Debapriya Banik, **Debotosh Bhattacharjee, Mita Nasipuri**; “Recent Advances in Intelligent Imaging Systems for Early Prediction of Colorectal Cancer: A Perspective”; *Enabling Machine Learning Applications in Data Science*, Pages 39-61, Springer, Singapore, 2021
10. Riktim Mondal, Dibyendu Mukhopadhyay, Sayanwita Barua, Pawan Kumar Singh, **Ram Sarkar, Debotosh Bhattacharjee**; “A study on smartphone sensor-based Human Activity Recognition using deep learning approaches”; *Handbook of Computational Intelligence in Biomedical Engineering and Healthcare*, Pages 343-369, Academic Press, 2021
11. Ratnadeep Dey, **Debotosh Bhattacharjee, Mita Nasipuri**; “Image Denoising Using Generative Adversarial Network”; *Intelligent Computing: Image Processing Based Applications*, pages 73-90, Springer, Singapore, 2020
12. Swarnava Sadhukhan, Siddhartha Mallick, Pawan Kumar Singh, **Ram Sarkar, Debotosh Bhattacharjee**; “A comparative study of different feature descriptors for video-based human action recognition”; *Intelligent Computing: Image Processing Based Applications*, Pages 35-52, Springer, Singapore, 2020
13. Koushik Dutta, **Debotosh Bhattacharjee, Mita Nasipuri**; “Pose Registration of 3D Face Images”; *Intelligent Computing: Image Processing Based Applications*, Pages 53-71, Springer, Singapore, 2020
14. Koushik Dutta, **Debotosh Bhattacharjee, Mita Nasipuri**; “Volumetric Density of Triangulated Range Images for Face Recognition”; *Volumetric Density of Triangulated Range Images for Face Recognition*, Pages 58-84, Springer, Berlin, Heidelberg, 2020
15. Ratnadeep Dey, **Debotosh Bhattacharjee, Mita Nasipuri**; “Object detection in rainy condition from video using YOLO based deep learning model”; *Advanced Computing and Systems for Security*, Pages 121-131, Springer, Singapore, 2020
16. Debapriya Banik, **Debotosh Bhattacharjee, Mita Nasipuri**; “A multi-scale patch-based deep learning system for polyp segmentation”; *Advanced Computing and Systems for Security*, Pages 121-131, Springer, Singapore, 2020
17. Priya Sen Purkait, Hiranmoy Roy, **Debotosh Bhattacharjee**; “Local shearlet energy gammodian pattern (LSEGP): a scale space binary shape descriptor for texture classification”; *Intelligence enabled research*, Pages 123-131, Springer, Singapore, 2020
18. Ratnadeep Dey, **Debotosh Bhattacharjee**; “Single Image De-raining Using GAN for Accurate Video Surveillance”; *Intelligence enabled research*, Pages 7-11, Springer, Singapore, 2020
19. Kaushiki Roy, **Debotosh Bhattacharjee, Mita Nasipuri**; “Automated Segmentation of Cervical Cells Using MSER Algorithm and Gradient Embedded Cost Function-Based Level-Set Method”; *Computer Vision and Machine Intelligence in Medical Image Analysis*, Pages 91-99, Springer, Singapore, 2020
20. Joy Dutta, **Sarbani Roy**, “Universal IoT Framework”, *Interoperability in IoT for Smart Systems*, CRC Press, 2020. <https://www.taylorfrancis.com/chapters/edit/10.1201/9781003055976-3/universal-iot-framework-joy-dutta-sarbani-roy>
21. Paramita Dey, **Sarbani Roy**, “Governance in Smart City: An Approach Based on Social Network”, In: Khan M.A., Algarni F., Quasim M.T. (eds) *Smart Cities: A Data Analytics Perspective. Lecture Notes in Intelligent Transportation and Infrastructure*. Springer, Cham. December 2020. [https://doi.org/10.1007/978-3-030-60922-1\\_4](https://doi.org/10.1007/978-3-030-60922-1_4)

### F. Research Articles Published in Conference Proceedings during the year

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. T. Sahana, S. Paul, **S. Basu**, A.F. Mollah, Hand sign recognition from depth images with multi-scale density features for deaf mute persons, in: *Procedia Comput. Sci.*, Elsevier B.V., 2020: pp. 2043–2050. <https://doi.org/10.1016/j.procs.2020.03.243>.
2. T. Chakraborty, B. Barai, B. Chatterjee, **N. Das, S. Basu, M. Nasipuri**, Closed-Set Device-Independent Speaker Identification Using CNN, in: *Adv. Intell. Syst. Comput.*, Springer, 2020: pp. 291–299. [https://doi.org/10.1007/978-981-15-1084-7\\_28](https://doi.org/10.1007/978-981-15-1084-7_28).
3. S.S. Bandyopadhyay, A.K. Halder, P. Chatterjee, J. Sroka, **M. Nasipuri, S. Basu**, 2020, Analysis of Large-Scale Human Protein Sequences Using an Efficient Spark Based DBSCAN Algorithm. In

## Annual Report 2020-2021

- Proceedings of International Conference on Frontiers in Computing and Systems, COMSYS-2020, Springer.
4. A.K. Halder, A.F. Mollah, P. Chatterjee, D.K. Kole, **S. Basu**, D. Plewczynski, 2020. SeqPIP-2020: Sequence based Protein Interaction Prediction Contest. In Proceedings of International Conference on Frontiers in Computing and Systems, COMSYS-2020, Springer.
  5. S. Panda, S. Ash, N. Chakraborty, A.F. Mollah, **S. Basu**, and **R. Sarkar**, 2020. Parameter Tuning in MSER for Text Localization in Multi-lingual Camera-Captured Scene Text Images. In Computational Intelligence in Pattern Recognition (pp. 999-1009). Springer, Singapore.
  6. S. Paul, A. Bhattacharyya, A.F. Mollah, **S. Basu**, and **M. Nasipuri**, 2020. Hand Segmentation from Complex Background for Gesture Recognition. In Emerging Technology in Modelling and Graphics (pp. 775-782). Springer, Singapore.
  7. N. Chakraborty, A. F. Mollah, **S. Basu**, **R. Sarkar**, A. Chakraborty, "Bright-on-Dark, Dark-on-Bright", Approach to Multilingual Scene Text Detection. In: Bhattacharjee D., Kole D.K., Dey N., Basu S., Plewczynski D. (eds) Proceedings of International Conference on Frontiers in Computing and Systems. Advances in Intelligent Systems and Computing, vol 1255. Springer, Singapore. [https://doi.org/10.1007/978-981-15-7834-2\\_18](https://doi.org/10.1007/978-981-15-7834-2_18)
  8. H. S. Ray, S. Mukherjee and **N. Mukherjee**, "Performance Enhancement in Big Data handling", 2020 International Conference on Contemporary Computing and Applications (IC3A), 2020, pp. 17-22, doi: 10.1109/IC3A48958.2020.233261.
  9. G. Kundu, **N. Mukherjee**, S. Mondal (2021) Building a Graph Database for Storing Heterogeneous Healthcare Data. In: Senjyu T., Mahalle P.N., Perumal T., Joshi A. (eds) Information and Communication Technology for Intelligent Systems. ICTIS 2020. Smart Innovation, Systems and Technologies, vol 196. Springer, Singapore. [https://doi.org/10.1007/978-981-15-7062-9\\_19](https://doi.org/10.1007/978-981-15-7062-9_19)
  10. U. Sen, M. Sarkar and **N. Mukherjee**, "Hybrid Job Scheduling in Distributed Systems based on Clone Detection", 2020 Sixth International Conference on Parallel, Distributed and Grid Computing (PDGC), 2020, pp. 78-83, doi: 10.1109/PDGC50313.2020.9315855
  11. Girish Biswas, **Nandini Mukherjee**, Memory Optimized Dynamic Matrix Chain Multiplication Using Shared Memory in GPU. In: Goswami D., Hoang T.A. (eds) Distributed Computing and Internet Technology. ICDCIT 2021. Lecture Notes in Computer Science, vol 12582. Springer, Cham. [https://doi.org/10.1007/978-3-030-65621-8\\_10](https://doi.org/10.1007/978-3-030-65621-8_10)
  12. S. Ranjan Das, K. Sinha, **N. Mukherjee**, B.P. Sinha (2021), Delay and Disruption Tolerant Networks: A Brief Survey. In: Mishra D., Buyya R., Mohapatra P., Patnaik S. (eds) Intelligent and Cloud Computing. Smart Innovation, Systems and Technologies, vol 194. Springer, Singapore. [https://doi.org/10.1007/978-981-15-5971-6\\_32](https://doi.org/10.1007/978-981-15-5971-6_32)
  13. S. R. Das, K. Sinha, **N. Mukherjee**, B. P. Sinha (2021), A Brief Survey on Placement of Access Points in Ultra-Dense Heterogeneous 5G Networks. In: Mishra D., Buyya R., Mohapatra P., Patnaik S. (eds) Intelligent and Cloud Computing. Smart Innovation, Systems and Technologies, vol 194. Springer, Singapore. [https://doi.org/10.1007/978-981-15-5971-6\\_90](https://doi.org/10.1007/978-981-15-5971-6_90)
  14. S. Dey, R. Bhattacharya and **R. Sarkar**, "Median Filter Aided CNN Model for Removal of Gaussian Noise from Images", 2020 *IEEE Recent Advances in Intelligent Computational Systems (RAICS)*, 2020, pp. 178-183, doi: 10.1109/RAICS51191.2020.9332492.
  15. A. Chakraborty, R. De, S. Malakar, F. Schwenker and **R. Sarkar**, "Handwritten Digit String Recognition using Deep Autoencoder based Segmentation and ResNet based Recognition Approach", 2020 *25th International Conference on Pattern Recognition (ICPR)*, 2021, pp. 7737-7742, doi: 10.1109/ICPR48806.2021.9412198.
  16. S. Bhowmik and **R. Sarkar**, "Classification of Text regions in a Document Image by Analyzing the properties of Connected Components", 2020 *IEEE Applied Signal Processing Conference (ASPCON)*, 2020, pp. 36-40, doi: 10.1109/ASPCON49795.2020.9276688.
  17. R. Guha, K. K. Ghosh, S. Bhowmik and **R. Sarkar**, "Mutually Informed Correlation Coefficient (MICC) - a New Filter Based Feature Selection Method", 2020 *IEEE Calcutta Conference (CALCON)*, 2020, pp. 54-58, doi: 10.1109/CALCON49167.2020.9106516

## Annual Report 2020-2021

18. A. Bhattacharya, S. Roy, N. Sarkar, S. Malakar and **R. Sarkar**, "Circuit Component Detection in Offline Handdrawn Electrical/Electronic Circuit Diagram", *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 80-84, doi: 10.1109/CALCON49167.2020.9106527.
19. K. Mukhopadhyay, R. Bose, A. Mondal, S. Kumar Bera, S. Bhowmik and **R. Sarkar**, "Removal of Salt and Pepper noise: A Game Theoretic Approach", *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 122-126, doi: 10.1109/CALCON49167.2020.9106532.
20. D. Banerjee, P. Bhowal, S. K. Bera and **R. Sarkar**, "Rectification of Camera Captured Document Images using Component Analysis", *2020 IEEE Calcutta Conference (CALCON)*, 2020, pp. 421-425, doi:10.1109/CALCON49167.2020.9106495.
21. Shyam Janam Mahato, Debapriya Banik, **Debotosh Bhattacharjee**; "Exploring Hand-Crafted Features and Transfer Learning for Polyp Segmentation"; International Conference on Computational Intelligence in Communications and Business Analytics, Pages 68-76, Springer, 2021
22. Sanjoy Ghatak, **Debotosh Bhattacharjee**; "Video Indexing Through Human Face"; Proceedings of International Conference on Communication, Circuits, and Systems, Pages 99-107, Springer, Singapore, 2021
23. Parama Bagchi, **Debotosh Bhattacharjee**, **Mita Nasipuri**; "A Novel Approach to 3D Face Registration for Biometric Analysis Using RCompute\_ICP"; Proceedings of International Conference on Frontiers in Computing and Systems, Pages 483-493, Springer, Singapore, 2021
24. Subhadeep Koley, Hiranmoy Roy, Soumyadip Dhar, **Debotosh Bhattacharjee**; "Edge Detection based on Local-Friis-Radiation-Magnitude-Ratio (LFRMR)"; Fifth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), Pages 99-104, IEEE, 2020
25. Bisakh Mondal, **Nibaran Das**, K.C. Santosh and **Mita Nasipuri**, "Improved Skin Disease Classification Using Generative Adversarial Network," in 2020 IEEE 33rd International Symposium on Computer-Based Medical Systems (CBMS), Rochester, MN, USA, 2020 pp. 520-525.
26. Hmrishav Bandyopadhyay, Tanmoy Dasgupta, **Nibaran Das**, **Mita Nasipuri**, "A Gated and Bifurcated Stacked U-Net Module for Document Image Dewarping," 2020 25th International Conference on Pattern Recognition (ICPR), 2021, pp. 10548-10554, doi: 10.1109/ICPR48806.2021.9413001.
27. Tanmoy Sarkar, Animesh Hazra, **Nibaran Das**, Classification of Colorectal Cancer Histology Images Using Image Reconstruction and Modified DenseNet. In: Computational Intelligence in Communications and Business Analytics. CICBA 2021. Communications in Computer and Information Science, vol 1406. Springer, Cham. [https://doi.org/10.1007/978-3-030-75529-4\\_20](https://doi.org/10.1007/978-3-030-75529-4_20)
28. Shuvayan Ghosh Dastidar, Kalpita Dutta, **Nibaran Das**, **Mahantapas Kundu**, **Mita Nasipuri**, Exploring Knowledge Distillation of a Deep Neural Network for Multi-script Identification. In: Computational Intelligence in Communications and Business Analytics. CICBA 2021. Communications in Computer and Information Science, vol 1406. Springer, Cham. [https://doi.org/10.1007/978-3-030-75529-4\\_12](https://doi.org/10.1007/978-3-030-75529-4_12)
29. Md. Osman Gani, Somenath Kuiry, Alaka Das, **Mita Nasipuri**, **Nibaran Das**: Multispectral Object Detection with Deep Learning. In: Computational Intelligence in Communications and Business Analytics. CICBA 2021. Communications in Computer and Information Science, vol 1406. Springer, Cham. [https://doi.org/10.1007/978-3-030-75529-4\\_9](https://doi.org/10.1007/978-3-030-75529-4_9)
30. Aritra Dey, Shyamali Mitra and **Nibaran Das**, "Handwritten Tibetan Character recognition based on ELM using modified HOG features", 2020 IEEE Calcutta Conference (CALCON), 2020, pp. 451-456, doi: 10.1109/CALCON49167.2020.9106541.
31. Joy Dutta, **Sarbani Roy**, "Indoor Air Pollution Prediction using Time Series Forecasting Models", 2nd INTERNATIONAL CONFERENCE ON EMERGING TECHNOLOGIES IN DATA MINING AND INFORMATION SECURITY, Proceedings of IEMIS 2020, Emerging Technologies in Data Mining and Information Security, Springer, July 2-4, 2020.
32. Baidik Chandra, Asif Iqbal Middy, **Sarbani Roy**, "Spatio-temporal Prediction of Noise Pollution using Participatory Sensing", 2nd INTERNATIONAL CONFERENCE ON EMERGING TECHNOLOGIES IN DATA MINING AND INFORMATION SECURITY, Proceedings of IEMIS 2020, Emerging Technologies in Data Mining and Information Security, Springer, July 2-4, 2020.

**Annual Report 2020-2021**

**G. Patents Granted/ Published/ Filed during the year:**

<b>Name of the Inventors</b>	<b>Title of the Patent</b>	<b>National/ International</b>	<b>Status Granted/ Published/ Filed</b>	<b>Patent Number</b>	<b>Date of Publication</b>
Pramit Ghosh and <b>Debotosh Bhattacharjee</b>	System and Method for detecting abnormal USG probe	Indian	Filed	Patent Application No.202031010199	19/03/2021 (U/S 11A)

**H. Research Collaboration with other Departments/Institutes/Industries**

<b>Name of the Teacher(s)</b>	<b>Name of the Collaborator(s)</b>	<b>Collaborating Dept./Inst./Indus.</b>	<b>Nature of Collaboration</b>	<b>Duration</b>
<b>Sarbani Roy</b>	Sunirmal Khatua	University of Calcutta, India	Joint Ph.D guidance and publication	Since 2012
<b>Sarbani Roy</b>	Amarnath Gupta	San Diego Supercomputer Center, University of California San Diego	Joint research and publication	Since 2018
<b>Susmita Ghosh</b>	Jonathan H Chan	KMUTT Bangkok	One of the Founding members of Innovative Cognitive Computing Research Center, Project Collaborator, Joint Research publication	Since 2019
<b>Susmita Ghosh</b>	H. N. Somehsaraei	University of Stavanger, Norway	Joint Research publication, Project Collaborator	Since 2017
<b>Susmita Ghosh</b>	M. Assadi	University of Stavanger, Norway	Joint Research publication, Project Collaborator	Since 2017
<b>Susmita Ghosh</b>	Y S. Zhang	Harvard Medical School	Project Collaborator	Since 2019
<b>Susmita Ghosh</b>	Sudipta De	Dept. of Mechanical Engg, JU	Joint Research publication, Project Collaborator	Since 2017
<b>Susmita Ghosh</b>	Badri N Subudhi	IIT Jammu	Project Collaborator	Since 2019

**Annual Report 2020-2021**

<b>Susmita Ghosh</b>	Rahul Roy	Gitam University	Joint Research publication	Since 2019
<b>Debotosh Bhattacharjee</b>	Mrinal Kanti Bhowmik	Tripura University	Joint Research, publication and Project collaboration	Since 2010
<b>Debotosh Bhattacharjee</b>	Amlan Chakrabarti	University of Calcutta	Joint Ph.D supervision and publication	Since 2003
<b>Debotosh Bhattacharjee</b>	Paramartha Dutta	Visva Bharati University	Joint Research and Publication	Since 2015
<b>Debotosh Bhattacharjee</b>	Arindam Kar	Indian Statistical Institute, Kolkata	Joint Research and publication	Since 2014
<b>Debotosh Bhattacharjee</b>	Gautam Majumdar	Regional Cancer Centre, Agartala, Tripura	Joint Research and publication	Since 2015
<b>Debotosh Bhattacharjee</b>	Ayan Seal	IITDM, Jabalpur	Joint Research, publication and Project Collaboration	Since 2016
<b>Debotosh Bhattacharjee</b>	Asish Bera	Edge-Hill University, UK	Joint Research and publication	Since 2019
<b>Debotosh Bhattacharjee</b>	Edmond S. L. Ho	Northumbria University, UK	Joint Research and publication	Since 2017
<b>Debotosh Bhattacharjee</b>	Luis Rato	University of Evora, Portugal	Joint Ph.D supervision and publication	Since 2015
<b>Debotosh Bhattacharjee</b>	Ernestina Menasalvas	Universidad Politécnica de Madrid, Spain	Joint Research, publication and Project Collaboration	Since 2018
<b>Debotosh Bhattacharjee</b>	Consuelo Gonzalo-Martín	Universidad Politécnica de Madrid, Spain	Joint Research, publication and Project Collaboration	Since 2018
<b>Debotosh Bhattacharjee</b>	Gordon Chan	University of Alberta, Canada	Joint Research, publication and Project Collaboration	Since 2019
<b>Debotosh Bhattacharjee</b>	Christian Kollman	Medical University of Vienna, Austria	Joint Research, publication and Project Collaboration	Since 2019
<b>Debotosh Bhattacharjee</b>	Ondrej Krejcar	University of Hradec Kralove, Czech Republic	Joint Research and publication	Since 2019
<b>Debotosh Bhattacharjee</b>	Hubert P. H. Shum	Durham University, UK	Joint Research and publication	Since 2017
<b>Nibaran Das</b>	K. C. santosh	University of South Dakota	Joint Research publication	

### Annual Report 2020-2021

<b>Mita Nasipuri</b>	Dr. Sourav Dutta	Executive Director IT, IDBI Bank Ltd.	Industrial collaboration and joint research	Since 2017
----------------------	------------------	--	---	------------

**5. Professional Activities by the Faculty Members/ Research Scholars of the Centre during the year:**

**B. Books/Monographs Edited:**

<b>Name of the Editor(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
M. Roy Kanjilal, M. Nasipuri and M. Mitra, (Eds.)	3rd International Conference on Computational Advancement in Communication, Circuits and Systems (ICCACCS 2020)  Subtitle: Computational Advancement in Communication, Circuits and Systems	Springer	Hardcover ISBN 978-981-16-4034-6 Series ISSN 1876-1100	2021

**C. Seminar/Workshop/Conference/Symposium Organized:**

(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)

<b>Name of the Seminar/Workshop/Conference /Symposium</b>	<b>Name of the Coordinator(s)/Organizing Secretary/equivalent</b>	<b>Title of the Proceedings, if published</b>	<b>Place</b>	<b>Date</b>
One-Day Virtual Workshop on Remotely Sensed Data Analysis	Susmita Ghosh, Organized by IEEE GRSS Kolkata Chapter	No	Virtual	March 13, 2021
Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III	Mita Nasipuri Jt- Coordinator,  Thematic area: Computing, Information and Data Science		Virtual	February 26-27, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Ram Sarkar</b>	Invited Lecture	Refresher Course on “Data Science and its Application” Topic: Meta-heuristic Techniques for Feature Selection	Dept. of CSE and UGC HRDC, JU	2 March, 2021
<b>Nandini Mukherjee</b>	Invited Lecture	SDP on Recent Advances in High-	Department of Computer Science	18 August, 2020

**Annual Report 2020-2021**

		performance Distributed Computing Topic: Democratization of High Performance Computing in the era of Big Data“	and Engineering, Aliah University	
<b>Nandini Mukherjee</b>	Invited Lecture	Faculty Development Program on “Multimedia in Teaching and Learning”	Department of Zoology, Palwal College Shikohabad, Firozabad, UP	27 August to 2 September, 2020
<b>Nandini Mukherjee</b>	Invited Lecture	Short term course on Cloud Computing Topic: Sensing-as-a-Service: Building a Sensor Cloud Infrastructure	NIT, Jalandhar and Rajib Gandhi National Institute of Youth Development (RGNIYD), Tamil Nadu	16 to 20 November, 2020 (lectured on 19th November 2020)
<b>Nandini Mukherjee</b>	Invited Lecture	Faculty Development Program on Cloud Computing and Services	Department of Information Technology, Techno India, Salt Lake and E&ICT Academy, NIT Patna	14 to 18 December, 2020 (lectured on 17th December, 2020
<b>Nandini Mukherjee</b>	Invited Lecture	Short term course on Internet of Things: Architectures, Protocols, Applications and Security Concerns	Department of Computer Science and Technology, IEST, Shibpur	14 to 18 December, 2020 (lectured on 16th December, 2020)
<b>Nandini Mukherjee</b>	Invited Lecture	Short Term Workshop on MOOC	Department of Library and Information Science, Jadavpur University	23 February to 1 March 2021 (lectured on 1st March 2021)
<b>Nandini Mukherjee</b>	Invited Lecture	UGC-HRDC, Jadavpur University sponsored refresher course on Data Science and its Applications Topic: “High Performance Computing for Data Science”	Department of Computer Science and Engineering, Jadavpur University	22 February to 6 March, 2021 (lectured on 27th February, 2021)
<b>Sarbani Roy</b>	Invited lecture	Two days long Webinar on Future	Government College of	8 and 9 August, 2020



**Annual Report 2020-2021**

		Generation Computing and Applications -- A walk through of Deep Learning, Social Networking, Internet of Things and Quantum Computing Topic: IoT-Cloud System for Monitoring Applications (08/08/2020)	Engineering & Ceramic Technology, Kolkata	
<b>Sarbani Roy</b>	Invited lecture	SDP on Recent Advances in High-performance Distributed Computing Topic: Migration Techniques in Cloud: Overview and Research Challenges (18/08/2020)	Department of Computer Science and Engineering, Aliah University, Kolkata	18 August, 2020
<b>Sarbani Roy</b>	Invited lecture	AICTE Training & Learning (ATAL) Faculty Development Program on Data Sciences Topic: Cloud Computing for Data Science (28/08/2020)	Tripura Institute of Technology	24 to 28 August, 2020
<b>Sarbani Roy</b>	Invited lecture	International Faculty Development Program on Advances in technologies, evolving new dimensions in e-society Topic: Participatory Sensing based Societal Applications (04/09/2020)	JIS College of Engineering, Kolkata	2 to 6 September, 2020
<b>Sarbani Roy</b>	Invited lecture	5-days Workshop on "Cloud, IoT and Data Science applications  Topic: Hadoop Distributed Framework and overview of Spark (date: 18/09/2020) Topic: Overview of IoT and Monitoring applications (date: 20/09/2020)	TEQIP-III of Maulana Abul Kalam Azad University of Technology, WB and organized in association with Islamic University of Science and Technology (IUST), Jammu and Kashmir	18 to 22 September, 2020

**Annual Report 2020-2021**

<b>Sarbani Roy</b>	Invited lecture	Webinar on “Future Generation Computing and Applications: Cloud Computing” Topic: Migration techniques in Cloud: Overview and research challenges	SMCC, Jadavpur University in collaboration with Government College of Engineering and Ceramic Technology	26th September, 2020
<b>Sarbani Roy</b>	Invited lecture	Short term course on Cloud Computing  Topic: Cloud Computing (20/11/2020)	NIT, Jalandhar and Rajib Gandhi National Institute of Youth Development (RGNIYD), Tamil Nadu	16 to 20 November, 2020
<b>Sarbani Roy</b>	Invited lecture	Faculty Development Program on Cloud Computing & Services  Topic: Virtual Machine Migration Techniques in Cloud Environment (16/12/2020)	Department of Information Technology, Techno India, Salt Lake and E&ICT Academy, NIT Patna	14 to 18 December 2020
<b>Sarbani Roy</b>	Invited lecture	Refresher course Topic: Cloud Computing for Data Science (26/02/2021)	UGC HRDC and Department of Computer Science, Jadavpur University	22 February - 6 March, 2021
<b>Susmita Ghosh</b>	Invited Lecture	Webinar: Emerging Research Areas in Computer Science and Engineering Topic: Evolutionary Algorithms and Applications	Baba Ghulam Shah Badshah University Rajouri (held virtually)	May 28, 2020
<b>Susmita Ghosh</b>	Invited Lecture	APNNS/IEEE Education Forum Series: Deep Learning and Artificial Intelligence Summer School (DLAI3) Topic: Semi-Supervised Learning with Applications	Thailand (held online)	July 02, 2020
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 1st Faculty Induction Program Topic: Artificial Intelligence	UGC HRDC, JU (held online)	January 20, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored	UGC HRDC and Department of	February 24, 2021

**Annual Report 2020-2021**

		Interdisciplinary Refresher Course on “Data Science and its Applications” (RCCOMI2021) Topic: Feature Extraction Techniques and Principal Component Analysis	Computer Science, Jadavpur University (held online)	
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 2nd Faculty Induction Program Topic: Artificial Intelligence	UGC HRDC, JU (held online)	February 25, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 2nd Faculty Induction Program Topic: Machine Learning	UGC HRDC, JU (held online)	February 26, 2021
<b>Susmita Ghosh</b>	Invited Lecture	Third International Workshop on Multimedia Applications, IWMA 2021 Topic: Evolutionary Algorithms: What, How and Where	LNM Institute of Information Technology, Jaipur (held online)	March 05, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 3rd Faculty Induction Program Topic: Introduction to Artificial Intelligence	UGC HRDC, JU (held online)	March 11, 2021
<b>Susmita Ghosh</b>	Invited Lecture	UGC-HRDC sponsored 3rd Faculty Induction Program Topic: Introduction to Machine Learning	UGC HRDC, JU (held online)	March 12, 2021
<b>Susmita Ghosh</b>	Invited Lecture	5-days FDP at NMAM Institute of Technology Topic: Introduction to Deep Learning	NITTE, Karnataka	March 24, 2021
<b>Susmita Ghosh</b>	Panelist Topic: AI and Cognitive Computing	APNNS/IEEE Education Forum Series: Deep Learning and Artificial Intelligence Summer School (DLAI3)	Virtual (organized by KMUTT Thailand)	July 02, 2020

**Annual Report 2020-2021**

<b>Nibaran Das</b>	Invited Lecture	Refresher Course on “Data Science and its Application” Topic: Neural Networks and Deep Learning	Dept. of CSE and UGC MHRD, JU	23- 24 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	Refresher course on Data Science and its Applications Topic:Image Processing with Machine Learning	UGC HRDC and Department of Computer Science, Jadavpur University	22 February to 6 March 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Outcome-Based Education	NIT Mizoram	1-5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Designing Course Outcomes(COs)	NIT Mizoram	1- 5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Various Mappings with reference to NBA	NIT Mizoram	1- 5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	AICTE sponsored FDP Topic:Direct and Indirect Attainment Calculation	NIT Mizoram	1- 5 February, 2021
<b>Debotosh Bhattacharjee</b>	Invited lecture	National Workshop on Enhancing Digital Skills among the Youths of North Eastern States: Towards a Digital India Topic: AI Basics	Rajiv Gandhi National Institute of Youth Development, Sriperumbudur	24-26 November, 2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

<b>Name of the Teacher / RS</b>	<b>Title of the Paper</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Joy Dutta (PhD Scholar)</b>	Indoor Air Pollution Prediction using Time Series Forecasting Models	2nd International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020)	Virtual, Institute of Engineering and Management (IEM)	2-4 July, 2020

### Annual Report 2020-2021

<b>Baidik Chandra (UG Student)</b>	Spatio-temporal Prediction of Noise Pollution using Participatory Sensing	2nd International Conference on Emerging Technologies in Data Mining and Information Security (IEMIS 2020)	Virtual, Institute of Engineering and Management (IEM)	2-4 July, 2020
<b>Showmik Bhowmik (PhD Scholar)</b>	Classification of Text regions in a Document Image by Analyzing the properties of Connected Components	2020 IEEE Applied Signal Processing Conference (ASPCON)	Virtual mode, Jadavpur University	7-9 October, 2020
<b>Anuran Chakraborty (UG Student)</b>	Handwritten Digit String Recognition using Deep Autoencoder based Segmentation and ResNet based Recognition Approach	25 <sup>th</sup> International Conference on Pattern Recognition, ICPR-2020	Virtual Mode, Milan, Italy.	10-15 January, 2021
<b>Debapriya banik (Ph.D Scholar)</b>	Exploring Hand-Crafted Features and Transfer Learning for Polyp Segmentation	International Conference on Computational Intelligence in Communications and Business Analytics	Santiniketan, India	7-8 January, 2021
<b>Rajdeep Bhattacharya (UG Student)</b>	Form Processing to Scene Text Detection - Some Image Processing Applications	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26February, 2021 (2:00--2:15 PM)
<b>Shuvayan Ghosh Dastidar (UG Student)</b>	A Camera Based Document Image Recognition System	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26February, 2021 (2:15 -- 2:30 PM)
<b>Saswat Singh and Sajan Rajak (UG Student)</b>	Time Series Analysis of COVID-19 Data	Webinar FET JU R&D Expo 2021 Sponsored by TEQIP-III Track: Computing, Information and Data Sciences	Virtual mode, Jadavpur University	Date: 26February, 2021 (3:00 -- 3:15 PM)
<b>Abhishek Dey</b>	Band Elimination for Dimensionality Reduction of Hyperspectral Images	2020 IEEE International Geoscience and Remote Sensing	Virtual	Date: 01October, 2020

**Annual Report 2020-2021**

	Using Mutual Information	Symposium, IEEE IGARSS		14.40-14.50PM (UTC)
--	--------------------------	------------------------	--	---------------------

**H. Any Other Seminar/Workshop/Conference/Symposium/Course attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
<b>Debapriya Banik (Ph.D Scholar)</b>	Online Workshop on Accelerated Data Science	NSM Nodal centre, IIT kharagpur, Nvidia	21-22 February, 2021
<b>Soumyajyoti Dey (PhD Scholar)</b>	International Online Workshop on New Trends in Fuzzy and Rough Set Theory and its Applications	Manipal University, Jaipur	25-29 September, 2020
<b>Koushik Dutta (PhD Scholar)</b>	Five Days Faculty Development Program on AI & It's Applications (Covid-19 Data Visualization & Analysis, Forecasting, Prediction & Face Recognition using Open CV)	EduxLabs (Esair Business Solution LLP)	11-15 May, 2020
<b>Hiranmoy Roy (PhD Scholar)</b>	Two weeks online Faculty Development Program on "Python Programming"	Electronics and ICT Academia, MeitY, Govt. of India	7-18 September, 2020
<b>Hiranmoy Roy (PhD Scholar)</b>	One week online Training Programme on 'ARTIFICIAL INTELLIGENCE & DEEP LEARNING'	Electronics and ICT Academy, PDPM Indian Institute of Information Technology, Design and Manufacturing Jabalpur	12-17 July, 2020
<b>Hiranmoy Roy (PhD Scholar)</b>	One week Faculty Development Programme on Image Authentication, WSN & IoT	Department of CSE, JIS College of Engineering, West Bengal in association with CSI Kolkata Chapter	22-26 June, 2020
<b>Hiranmoy Roy (PhD Scholar)</b>	One Week Online Faculty Development Program on "Recent Research Challenges in Computer Science and Applications (RRCCSA)"	Department of Computer Science and Engineering, RCC Institute of Information Technology, Kolkata	23-26 November, 28 November, 2020
<b>Hiranmoy Roy (Ph.D Scholar)</b>	Two week (equivalent to 3 credit 40 hours course) online faculty development programme on "Advanced Optimization Techniques and hands-on with MATLAB/SCILAB"	Electronics and ICT Academia, MeitY, Govt. of India	13-24 July, 2020
<b>Hiranmoy Roy (Ph.D Scholar)</b>	Two weeks online Faculty Development Programme on "Machine Learning for Computer Vision"	Electronics and ICT Academia, MeitY, Govt. of India	29 June-8 July, 2020

**Annual Report 2020-2021**

<b>Hiranmoy Roy (PhD Scholar)</b>	Five Days Faculty Development Program on “Deep Learning For Medical Data Analysis , Visualization & Predictions”	EduxLabs (Esair Business Solution LLP)	1- 5 June, 2020
<b>Hiranmoy Roy (PhD Scholar)</b>	5 Days Instructor Led Live Online Faculty Development Program On Artificial Intelligence & Machine Learning Using Python	Finland labs	25- 29 May, 2020
<b>Hiranmoy Roy (PhD Scholar)</b>	Five Days Faculty Development Program on AI & Its Applications (Covid-19 Data Visualization & Analysis, Forecasting, Prediction & Face Recognition using Open CV)	EduxLabs (Esair Business Solution LLP)	11-15 May, 2020
<b>Hiranmoy Roy (PhD Scholar)</b>	Two weeks course on “Digital Transformation on Teaching Learning Process”	IIT Bombay TEQIP-3	6 to 22 April, 2020
<b>Parama Bagchi (PhD Scholar)</b>	One week FDP on Image Authentication, WSN and IoT	JIS College of Engineering	22-26 June, 2020
<b>Parama Bagchi (PhD Scholar)</b>	On-line Summer School cum FDP on Advances in Signal Processing and Machine Learning organized by from	MHRD Institution Innovation Council Deen Dayal Upadhyaya College, University of Delhi and National Academy of Sciences India Delhi chapter	20-26 July, 2020
<b>Parama Bagchi (PhD Scholar)</b>	Online one week FDP on Data Sciences	AICTE and Learning Academy	28 September- 2 October, 2020
<b>Parama Bagchi (PhD Scholar)</b>	One week FDP on Recent Research Challenges in Computer Science and Applications	CSE Dept, RCCIIT	23-26 November, 2020
<b>Debayan Goswami (PhD Scholar)</b>	APNNS Education Forum Series: Deep Learning and Artificial Intelligence Winter School (DLAI4), organized by KMUTT, Thailand	Virtual	18-22 November, 2020
<b>Arnab Banerjee (PhD Scholar)</b>	Selected Topics on Research Methodology	Department of Computer Science Engineering, Aliah University	4 September, 2020
<b>Arnab Banerjee (PhD Scholar)</b>	Quality Education Through OBE (Sponsored by AICTE)	Bardhaman College of Engineering, Hyderabad	13-17 July, 2020

## Annual Report 2020-2021

<b>Arnab Banerjee (PhD Scholar)</b>	Joint Online Faculty Development Programme “Data Science for All”- (Supported by Ministry of Electronics and Information Technology, MeitY, Govt. of India.)	Jointly Organized by E & ICT Academy, NIT Patna	27 July-7 August, 2020
<b>Arnab Banerjee (PhD Scholar)</b>	Data Science for Societal Development	AICTE Training And Learning (ATAL) Academy	16 – 20 September, 2020
<b>Arnab Banerjee (PhD Scholar)</b>	Deep Learning for Visual Computing and Communication (Sponsored by Electronics and ICT academy at National Institute of Technology Patna)	Department of Electronics & Communication Engineering, National Institute of Technology Silchar.	15- 21 October, 2020

### 6. Major Achievements of the Centre during the year:

#### C. Awards received by Research Scholars/students:

<b>Name of the Research Scholar/ Student</b>	<b>Name of the Award/ Honour</b>	<b>Awarding Institute</b>	<b>Place</b>	<b>Batch (in AY20-21)</b>
Soumyajyoti Dey	Winner in IEEE Xplore Challenge for Researchers in India	IEEE	Virtual (Nov 2020)	Research Scholar

#### D. Any Other Major Achievements:

Subhadip Basu is an Honorary Research Scientist of University of Iowa, USA

### 7. Extension Activities of the Centre during the year:

#### B. Activities for the Society:

- Susmita Ghosh, Chair, IEEE Geoscience and Remote Sensing Society, From January 2021.
- Susmita Ghosh, Vice-Chair, IEEE Geoscience and Remote Sensing Society, From January 2019 - December 2020.
- Subhadip Basu, Chair, Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2021
- Sarbani Roy, Vice- Chair, Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2021
- Ram Sarkar, Secretary, Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2020
- Nibaran Das, Treasurer Computer Chapter, IEEE Kolkata Section, From January 2019 - December 2020
- Ram Sarkar, Treasurer, Computer Chapter, IEEE Kolkata Section, From January 2020 - December 2021
- Nibaran Das, Secretary, Computer Chapter, IEEE Kolkata Section, From January 2020 - December 2021
- Ram Sarkar, Program Officer, NSS, April 2020 - March 2021



## Annual Report 2020-2021

### NUCLEAR AND PARTICLE PHYSICS RESEARCH

[Department of Physics]

Phone: 033-2457-2352

Joint Coordinator: Prof. Argha Deb

E-mail: argha\_deb@yahoo.com

#### 1. Vision and Mission of the Centre:

##### A. **Vision:**

- To create a conducive environment for state of the art research in the potential areas of Nuclear and Particle Physics.
- To strengthen interaction among the Nuclear and Particle Physicists in this part of the country by organising seminars, symposiums etc.
- To create and participate in different National and International collaborative research programmes.
- To organise students' programmes so that they are enthused to pursue research in the field of Nuclear and Particle Physics.

- B. **Mission:** Promote research in the field of Nuclear and Particle Physics and catch the young minds.

#### 3. Faculty Members in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
2		1	3

#### 4. Research Activities:

##### A. **Areas of Research Activities:(Broad Areas)**

- High energy hadronic and leptonic interactions
- Relativistic and ultra-relativistic heavy ion interactions
- Quark gluon plasma
- Environmental radioactivity
- Radon Physics
- Hadron structure
- Beyond Standard Model
- Super symmetry

##### B. **Major Research Projects:**

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
Study on QGP and Its Properties Using Correlation and Fluctuation Phenomena in Ultra- relativistic Heavy Ion Collisions	Individual	Mitali Mondal	DHESTBT, W. B.	Three years (29.06.2018 Continuing)

##### C. **Doctoral Research Activities:**

Number of students awarded Ph. D during the year	Number of Ph.D students registered in the Centre
--	--

## Annual Report 2020-2021

NIL	4
-----	---

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals) (Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No.,Year of publication)**

4. Mitali Mondal, Joyati Mondal, Somnath Kar , Argha Deb and Premomoy Ghosh, Forward-backward multiplicity and momentum correlations in pp collisions at LHC energies, Physical Review D 102, 014033, 2020
5. Das, B. and Deb, A. (2021). Theoretical evaluation of calibration factor for CR-39 track detector for alpha radioactivity measurement in natural water. *Radiation Physics and Chemistry*. **185**: 109511. <https://doi.org/10.1016/j.radphyschem.2021.109511>.

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Argha Deb	Invited Lecture	National Science Day Celebration Webinar	Sarat Centenary College Dhaniakhali, Hooghly, WB	One Day (28.02.2021)

### PLASMA STUDIES

(Department of Mathematics)

Phone: 033- 2457- 2714/2379

Co-ordinator: Prof. Anup Bandyopadhyay

E-mail: [anupb.math@jadavpuruniversity.in](mailto:anupb.math@jadavpuruniversity.in)

[cps.ju13@gmail.com](mailto:cps.ju13@gmail.com)/[abandyopadhyay1965@gmail.com](mailto:abandyopadhyay1965@gmail.com)

**1. Number of Faculty Members:**

No permanent Faculty Member.  
Teachers, Researchers of participating Departments, other Institutes, Colleges.  
Participate in the activities of the Centre.

**C. Participating Departments:** Instrumentation Science, J.U., Mathematics, J.U., Physics, J.U.

**Research Collaboration with other Institutes:**

**Collaborative Institute (International) :**

- i) Universita Degli Studi de Milano-Bicocca (Italy)
- ii) Centre Lasers Intenseset Application, University Bordeaux, France.
- iii) University of North Carolina, Charlette (USA).
- iv) Beijing Agricultural University(China)

## Annual Report 2020-2021

### Collaborative Institute (India) :

- i) Tata Institute of Fundamental Research (Mumbai).
- ii) Saha Institute of Nuclear Physics (SINP), Kolkata, Plasma Division.
- iii) Institute for Plasma Research, Gandhinagar.
- iv) Indian Statistical Institute, Kolkata, Physics & Mathematics Unit.
- v) University of Calcutta, Department of Applied Mathematics
- vi) Visva Bharati University, Santiniketan, Deptt. of Mathematics

### 2.

#### A. Area of Research Activities (Jointly with Dept. of Instrumentation Science, Physics & Mathematics, JU)

- i) Basic Plasma Physics : Linear & Non-linear wave processes.
- ii) Laser Plasma interaction: Inertial confinement fusion (ICF) related collaborative theoretical & experimental programme.
- iii) High Energy Density Plasma: Fluid Dynamics, Interfacial Fluid Instabilities applicable to ICF target and Astrophysics.
- iv) Dusty Plasma.
- v) Astrophysical Plasma.

#### B. Major ongoing Research project (Jointly with Dept. of Instrumentation Science & Mathematics, JU)

Name of the Teacher	Title of the Project	Funding Agency
<b>Prof. M. Khan (PI)</b> <b>Prof. R. Bhar(Co-PI)</b> <b>Prof. N.Chakrabarti(Co-PI)</b> <b>Prof. Samiran Ghosh(Co-PI)</b> <b>Dr. Sachindranath Das(Co-PI)</b>	Time Dependent Nonlinear Structure in Plasmas in the Frame Work of Lagrangian Fluid Description	CSIR, Govt.of India,  Duration:2017- 21
<b>Prof. M. Khan (Co-PI)</b> <b>Prof. R. Bhar (PI)</b> <b>Prof. R.K .Roychoudhury (Co-PI), ACNCP &amp; ISI(Ex), Kolkata</b> <b>Prof. Anup Bandyopadhyay</b>	Structural Properties and Astrophysical Application of Quantum Plasma	SERB, Govt. of India,  Duration: 2017-21

#### C. Award / Honour, etc. :. Ph.D. degree Awarded:

Aniruddha Mitra

Title of the thesis: **Studies of some structural and dynamical properties of quantum fluids**

Supervisor : Prof. Manoranjan Khan , JU & Prof. R.K.Roychoudhury, ACNCP

#### 5. List of publications in referred Journals during 2019-20:

1. Light trapping by the dark matter, A Mitra, **M Khan**, R Roychoudhury  
Astrophysics and Space Science 365 (7), 1-5, 2020
2. **An Efficient Simultaneous Electrochemical Detection of Nanomolar Epinephrine and Uric Acid using Low Temperature Synthesized Nano-sized Copper Telluride**, Susmita Pradhan, Mahuya Bhattacharyya Banerjee, Dr. Sudip Biswas, Dr. Nor Aliya Hamizi, Prof. Dipak K. Das, Prof. Radhaballabh Bhar, Prof. Rajib Bandyopadhyay, Prof. Panchanan Pramanik, **Electroanalysis, (2021)** Volume **33**, Issue **2**, Pages **383-392**  
<https://doi.org/10.1002/elan.202060283>,
3. Ferromagnetic properties in CuO-nanocrystals embedded in PVDF matrix. S. Dolai, R.Dey, S.N. Sarangi, R. Bhar, A.K. Pal, S.Dolai, R. Dey, S.N. Sarangi, S. Hussain, R. Bhar, A.K. Pal, Journal of Magnetism and Magnetic Materials(2020) 495, 165903, <https://doi.org/10.1016/j.jmmm.2019.165903>

## Annual Report 2020-2021

### STUDY OF RELIGION AND SOCIETY

[Department of Sociology]

Phone: 033-2457-2555

Joint Coordinators: Prof. Piyali Sur

Prof. Monojit Mandal

E-mail: piyali.sur@jadavpuruniversity.in

#### 1. Vision and Mission of the Centre:

##### A. Vision:

The principal aim of the Centre is to initiate a nuanced study of the realities of the modern world in which religion is an important feature, just as it has been in previous generations albeit today in a rather different shape. It will also promote a study of various aspects of religion in relation to society with the central purpose of encouraging scholars to explore deeper the more tolerant and universalizing features of religion both in the present and in the past as well as religion is more challenging feature. In resisting the spiral of societal hatred between groups of various religious orientations and exploring the multiple realities of ethnic, social and religious diversity, the centre wishes to promote respect and cooperation through increased knowledge of what religions are and do, their principles and values as well as the living practices of their adherents. The Centre is committed to do whatever is required to its best ability in order to undertake programs based on the above mentioned guidelines.

- B. Mission:** To promote a study of various aspects of religion in relation to society with the central purpose of encouraging scholars to explore deeper the more tolerant and universalizing features of religion both in the present and in the past.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
PG DIPLOMA COURSE IN SOCIETY, RELIGION AND SOCIAL WORK (EVENING)	1 YEAR	1 <sup>st</sup> year	14
		2 <sup>nd</sup> year ...	12 ( 2 STUDENTS LEFT)

#### 3. Faculty Members in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
2	N.A	1	3

#### 4. Research Activities:

##### A. Areas of Research Activities :(Broad Areas)

1. SOCIOLOGY OF RELIGION AND HEALTH
2. SOCIOLOGY OF GENDER AND SEXUALITY
3. SOCIOLOGY OF GENDER AND RELIGION

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals) (Name of authors, Title of the article, Name of the Journal, Volume No., Page No./Article No.,Year of publication)

1. Manojit Mandal, Edge of Aging: Shakespeare and Endless Empire in Teresian Journal of English Studies, a peer reviewed quarterly journal published from St Teresa's College(Autonomous), Ernakulam, Kerala, India; ISSN: 09756302, December 2020.

## Annual Report 2020-2021

### 5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:

#### B. Books/Monographs Edited :

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Prof. Manojit Mandal	Persons with Special Needs and Rehabilitation Management-Issues in Cultural Diversity and Management	Jadavpur University	2321-9254	2019-2020

#### F. Invited Lectures Delivered/Sessions Chaired:

Name of the Teacher / RS	Type of Participation	Name of the Conference/ Seminar	Place	Duration
Prof. Manojit Mandal	Delivered a lecture	Special international online lecture series on English Literary Studies	Midnapore College (Autonomous), Midnapore, West Bengal, India. July 2020	1 hour
Prof. Manojit Mandal	Lecture on "Tagore's idea of Education & Contemporary India"	Refreshers' Course :UGC-HRDC & Department of Education Jadavpur University	Jadavpur University	One and half hour
	Lecture on "Tagore and Decolonization"	UGC Sponsored Refreshers' Course on "Protean Wor(l)ds: Literary & Cultural Metamorphosis"	Do	Do
		UGC Sponsored Orientation (online) programme for college & university teachers	DO	

#### G. Papers presented in Seminar/Workshop/Conference/Symposium:

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Dr. Nabanita Das	IMPACT OF COVID 19 LOCKDOWN AND CYCLONE AMPHAN ON THE ISLAND VILLAGERS RESIDING IN THE SUNDARBANS DELTA OF WEST BENGAL	ENVIRONMENT AND SOCIETY (ICES, 2020)	NEW DELHI	26 December, 2020
Prof. Manojit Mandal	"Impact and Importance of the Mother Tongue in the Contemporary World"	UGC sponsored Seminar on Occasion of Bhasha Dibash, International Mother-Tongue Day	Department of Education, Jadavpur University	21 February, 2021

### 8. Students Progression during the year:

#### C. Progression to Higher Studies:

## Annual Report 2020-2021

Number of students enrolled in higher education	Programmes graduated from	Programmes admitted to	Institutes admitted to
2	SOCIOLOGY	M.PHIL	JADAVPUR UNIVERSITY

**D. Qualifying in State/ National/ International Level Examinations:**

Name of the Examination	No. of students selected/ qualified
NET	1
Any Other	4

## SUSTAINABLE DEVELOPMENT AND RESOURCE EFFICIENCY MANAGEMENT

[Department of Mechanical Engineering]

Phone: 033-2457-2256/2488

Coordinator: Prof. Sadhan Kumar Ghosh

E-mail: sadhankghosh9@gmail.com

**1. Vision and Mission of the Centre:**

**A. Vision:**

Every student and citizen will develop the knowledge, skills and passions for helping create an inclusive and just world that is socially, economically and ecologically sustainable.

**B. Mission:**

**CSD & REM** engages student and citizen in learning about, innovating for and practicing sustainability in the classroom, on the campus and in communities near and far. Engage student and citizen for reducing extraction of natural resource enhancing resource efficiency and complying with the methodologies for adhering with the targets in sustainable Development Goals.

**CSD & REM** supports the educational mission by creating, enhancing and connecting opportunities for learning about, innovating for and practicing sustainability in and beyond the classroom in society and industries. The Center works with faculty members in several academic departments to infuse sustainability across the university and beyond the university through outreach programmes. We collaborate with a variety of partners in promoting SDG, Circular Economy and other related issues.

**2. Academic Activities:**

**A. Programmes offered:**

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
		1 <sup>st</sup> year	

## Annual Report 2020-2021

Customized short term programmes on sustainable Development, Resource Efficiency, Low Carbon Technology, Waste Management, Circular Economy etc		2 <sup>nd</sup> year ...	
---	--	--------------------------	--

### 3. Faculty Members in the administrative committee and research group in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
9	2		

### 4. Research Activities:

#### A. **Areas of Research Activities:** (Broad Areas)

Inter and Multidisciplinary Research – Waste Management, Circular Economy, Resource Efficiency, E-wastes management, Plastic wastes management, Bio Medical Waste Management, C & D Waste management, Municipal wastes management, Policy Instruments, Recycling & Valorization Technology, Community Participation, Management Tolls, IoT application in waste management, Small Industries Sustainability, Sustainable development, Environmental Protection, Biodiversity, etc.

#### B. **Major Research Projects:**

##### **International Research Projects ongoing – Prof. Sadhan K. Ghosh as PI**

- Indo Hungarian Industrial Project (2021-2023)**– “Applied Industrial Research for the Thermolytic Recovery of sludge like wastes for the Circular Economy and Biogeochemical cycle” under Indo-Hungarian Inter-Governmental Science & Technological Cooperation Program Indo-Hungarian Joint Research, Funded by DST & Hungary. Funding by DST: INR 34.59 Lakh.
- SINTEF, Norway funded project (Dec 2020- Oct 2021) :** Ocean Plastic Turned into an Opportunity in Circular Economy (OPTOCE), Collaborative Research Project to Combat Marine Littering and Micro-plastics in Asia, (in India, Thailand, Vietnam, China and Norway), funded OPTOCE-project, SINTEF Energi AS, SINTEF Fiskerioghavbruk AS, SINTEF Petroleum AS and Norsk Marinteknisk Forskningsinstitutt AS (MARINTEK), Norway, Prof. Sadhan K Ghosh has been invited to Lead the project in India in March 2020- INR 7,92,000/-.
- Project title: Elaboration of waste-free method for obtaining alternative sorbents from solid organic polymer waste for the development of country’s circular economy;** Prof. Sadhan K Ghosh – Advisor; Foundation: "Shota Rustaveli National Science Foundation of Georgia" <http://rustaveli.org.ge/en>; Project start: 01.11.2021; Project end: 01.02.2023. Main Partner: Ms. Natela D.
- UNCRD, Japan; ISWMAW, CRIC (Consortium of researchers in international collaboration), India supported Research Project, 4<sup>th</sup> phase:** International Collaborative Research Project on, "Global Status of implementation of Circular Economy" (2020-2023), participated by experts from 32 countries. Prof Sadhan K Ghosh is the Project Leader. Participating countries to be decided soon to develop the project, “Circular Economy: Recent Trends in Global Perspective” and “Circular Economy: Policy, Innovation, Technology and Business”.
- Royal Academy of Engineering, UK funded (2019-2021):** Circular Economy adoption within small and medium sized enterprises in India and the UK. (Total : 40,000 GBP) (Contd.).
- Funded by Global Challenge Research Funding, UK (2019-2020):** Social Wellbeing and Mental Health Challenges of Employees of Small and Medium Sized Enterprise (SMEs) in Emerging Economies (2019-2020) : (10,000 GBP).

## Annual Report 2020-2021

7. **Shota Rustaveli National Science Foundation (SRNSF), Georgia, funded (2019-2022):** Development of an Integrated Methodology for Determination of the Likelihood of Emerging Illegal Dumpsites in High Mountainous Rural Regions on the Example of Georgia, (GEL 180 000). Partner: Institute of Hydrometeorology at Georgian Technical University, Georgia & Jadavpur University (Contd.).
8. **European Union funded: Horizon 2020 Research projects from European commission (July 2018 – June 2022) :** PI from Jadavpur University, Project Entitled, " India H2O bio-mimetic and phyto-techNologiesDesIgned for low-cost purfic Action and recycling of water. 20 participating organizations from 7 countries- India, UK, Denmark, Singapore, Spain, Netherlands and Israel. (INR 130 million) (Contd.)...

### D. Research Articles Published in Journals during the year (International / National Peer-reviewed journals):

#### Publications by Prof. Sadhan K. Ghosh during 2018-19 Published in Peer Reviewed Journal

1. Natalia Putinceva, Marina Ivanova , Maria Liubarskaia , **Sadhan Kumar Ghosh** , (2020), Implementation of Renewable Energy Sources in the Russian Energy System: Opportunities and Threats, DTMS '20, November 18–19, 2020, Saint Petersburg, Russian Federation © 2020 Association for Computing Machinery. ACM ISBN 978-1-4503-8890-0/20/11...\$15.00 <https://doi.org/10.1145/3446434.3446509>.
2. Baidya, R. & Ghosh, S. K. (2020). Co-processing of industrial trade rejects in cement plant. *Waste Management & Research*, 38(12), 1314-1320.
3. Baidya, R., & Ghosh, S. K. (2021). Disposal of Hazardous Industrial Waste in Cement Kiln – A Pilot Study of Acid Tar Sludge, *Waste Management & Research*, <https://doi.org/10.1177/0734242X211055544>.
4. Baidya, R., Debnath, B., Ghosh, S. K., & Rhee, S. W. (2020). Supply chain analysis of e-waste processing plants in developing countries. *Waste Management & Research*, 38(2), 173-183.

### F. Published in Research Articles Conference Proceedings during the year: Published in Conference Proceedings (2020-21)

1. Anaya Ghosh, **Sadhan Kumar Ghosh**, Jyoti Prakas Sarkar , Bimal Das, (2020), A critical analysis of the impacts of COVID-19 on the Indian economy and ecosystems and opportunities for circular economy strategies, Proceedings of the 10<sup>th</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW.
2. Jyothilakshmi. R, Sumangala Patil, Hemanth Kumar. K. J, **Sadhan Kumar Ghosh**, Sandya Jayakumar, A Study of the Processes, Parameters, and Optimization of Anaerobic Digestion for Food Waste, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW .
3. Veeresh Kumargouda,Dr. Jyothilakshmi. R, Sumanagala Patil, Sandhya Jayakumar, **Sadhan Kumar Ghosh**, " Utilization of food Processing waste for Energy Generation", The Journal of solid waste Technology and Management. Page No 190-195, ISSN 1091-8043, Widener University, USA, 2020.
4. Bindu Malla Thakuri, **Sadhan Kumar Ghosh**, Sun Jin Yun, (2020), Waste to energy as an alternative energy source for waste management in Nepal, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW
5. Abhijit Hazra, Saikat Das, Naresh Chandra Murmu, **Sadhan Kumar Ghosh**, Priyabrata Banerjee, An environmentally friendly process pathway for safe disposal of paddy stubble, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW .
6. Abhijit Hazra, Priyabrata Banerjee, **Sadhan Kumar Ghosh**, Harish Hirani, (2020), Fluid catalytic cracking catalyst driven production of bio fuel from waste plastic pyrolysis oil: A sustainable way of Waste Valorization, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW .
7. **Sadhan K Ghosh**, Tejashwi rana, (2020), Co-processing of Non-Recyclable plastic waste in cement kiln, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW.



## Annual Report 2020-2021

8. Sourya Subhra Chakraborty, **Sadhan K. Ghosh**, (2020), Survey methodologies to determine the supply chain & inventory of non-recyclable plastic wastes in landfill and other sectors towards closing the loop through co-processing, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW.
9. Krishanu Hait, **Sadhan K Ghosh**, (2020), Review paper on a business model of a wastewater treatment plant in India, Proceedings of the 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW.
10. Tanya Gupta, **Sadhan K Ghosh**, (2020), A Review of Macrophytes as Phyto- Filters: for WasteWater Treatment, 10<sup>TH</sup> IconSWM-CE, during Dec 2-7,2020, Jadavpur University by ISWMAW

### **Books as Editor : Edited volume /Int. Journal as Chief Editor / Editor / Associate Editor by Prof. Sadhan K. Ghosh**

1. Associate Editor, International Journal of Materials Cycle and Waste Management,.
2. Editor: Circular Economy: Recent Trends in Global Perspective, 2021, contribution from 14 countries on Circular Economy, to be *published December 2021*, Springer Nature Publication;
3. Editor: Circular Economy in Construction Industries, to be *published December 2021*, by Talor & Francis Publisher, UK
4. Editor: Circular Economy in Construction Industries, to be *published December 2021*, by Talor & Francis Publisher, UK
5. Biomethane through Resource Circularity : to be *published December 2021*, by Talor & Francis Publisher, UK
6. Editor: Proceedings of 10th IconSWM 2020 , in December 2020, ISWMAW.

### **5 Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

#### **C. Seminar/Workshop/Conference/Symposium Organized: Prof. Sadhan K. Ghosh**

1. 10<sup>th</sup> International Conference on Solid Waste Management, 10<sup>th</sup> IconSWM 2019 at JU, online, by International Society of Waste Management, Air and Water (ISWMAW), CQMS, Jadavpur University, IISc Bangalore and UNCRD- 220 papers presented by researchers from 44 countries.
2. WED (World Environment Day) Celebration Workshop on 5th June 2020 seminar at Jadavpur University- Invited lectures by 12 speakers from different countries registered by 1100 participants/researchers from 22 countries.
3. Research Review Meeting and Workshop, GCRF ESRC, UK seed corn funded research project, Social Wellbeing and Mental Health issues of employees in SMEs, July 24, 2020 at Centre for Sustainable Development and Resource Efficiency Management, Jadavpur University, Kolkata, India online- Eight researchers across the country presented attended by 30 researchers from India and the UK.
4. Royal Academy of Engineering (RAE), UK funded research project, Circular Economy Adoption in SMEs in India and the UK, August 21, 2020, at Centre for Sustainable Development and Resource Efficiency Management, Jadavpur University, Kolkata, India online- Five speakers spoke from India and the UK attended by 20 researchers.
5. Webinar on International Seminar thru Virtual platform: "Sustainable development & Low Carbon Technology - Theory, Research, Applications and Business"; 10th November, 2020– 10 Speakers across the country presented attended by 200 researchers from 7 Countries;
6. Webinar on "European Union - DBT Funded Wastewater Recycling: INDIA H2O Project", 16th October, 2020– 5 Speakers presented attended by 200 researchers from 3 Countries;
7. *Workshop on Anti Plagiarism and plagiarism Detection Software speakers 3 attended by 90 participants, January 12, 2021*

## Annual Report 2020-2021

### F. Invited Lectures Delivered / Sessions Chaired:

Lectures delivered in foreign Countries and India by Prof. Sadhan K. Ghosh

1. **USA:** Delivered the *Opening Plenary Speech* in Annapolis, Maryland, Washington DC, on “Pentangular Cooperation in promoting 3R and Circular Economy, in the 35th International Conference on Solid Waste Technology and Management, by Widener University, USA held during April 09-12, 2020.
2. **China :** Delivered plenary speech in the 14<sup>th</sup> ICWMT, organized by Tsinghua University, on May 24, 2020 online.
3. **Nigeria:** Keynote speech in the IconSWM-India-Nigeria Connect Webinar on “Waste Mangement and Circular Economy, organized by Covenant University Nigeria and other organizations, 30 September 2020.
4. **Philippines:** Keynote speech in the IconSWM-India-Philippines Connect Webinar on ““Resource Circulation and Waste Management under the Pandemic COVID-19”, organized by Central Bicol State Agricultural University, and Ecosystems Research and Development Bureau, Philippines and other organistions. 10<sup>th</sup> September 2020.
5. **Vietnam:** Keynote speech in the IconSWM-India–Vietnam Connect Webinar on “Circular Economy and Waste Management under the Pandemic COVID-19” on 18th September 2020 organised by ISPONRE, Hanoi, Vietnam.
6. **Hungary:** Delivered the Opening plenary speech in the 11th ICEEE-2020, Sustainable Environment Protection and Waste Management Responsibility Conference on 19-20, November 2020 by Obuda University RKK, Budapest, Hungary, Online.
7. **India:** Keynote speech in IconSWM- Asia Pacific Connect Webinar, September 30, 2020;
8. **India at IconSWM, Kolkata:** Delivered the Keynote Speech at the WED Seminar on 5 June 2020 on virtual platform.
9. **India at IconSWM, Kolkata:** Delivered the Keynote Speech at the WED Seminar on 12<sup>th</sup> June 2020 on virtual platform.
10. **ANU, Guntur, AP, India:** Delivered theKeynote speech in the National Webinar on “Biomedical Waste Impact during Pandemic Covid” 12 June 2020 on virtual platform organized by Centre for Centre for Environmental Education and Ecological Development (CEED), A.P., INDIA, Department of Environmental Sciences, ANU , World Environment Organization (WEO) and PRKRUTHI – The Environmental Club of LakireddyBalireddy College of the Engineering, Mylavaram.
11. **India:** Keynote speech in the “Biodiversity and Environmental Protection during Pandemic Outbreak of Covid 19” held on 5th June, 2020 online attended by 27 countries, organized by ISWMAW & CSD&REM, JU.

### Session Chaired (2020-21)

Description	Date	Venue
Chaired the Technical Session in the 35th International Conference on Solid Waste Technology and Management, Philadelphia, Widener University, USA held in April, 2020	April 11, 2020	Online, Annapolis, Maryland, Washington DC USA
Chaired the 14th ICWMT, International Conference on Solid Waste Management, May 27-30, 2020.	27-30 November, 2020	Online, Tsinghua University, Beijing, China
Chaired the “Biodiversity and Environmental Protection during Pandemic Outbreak of Covid 19”	4 June, 2020; 27countries attended,	online organized by ISWMAW & CSD&REM, JU. Kolkata, Online

## Annual Report 2020-2021

Chaired the International Seminar thru Virtual platform: "Sustainable development & Low Carbon Technology - Theory, Research, Applications and Business"; 10th November, 2020;	10 November, 2020	Online, Kolkata, India
Chaired, Webinar on "European Union - DBT Funded Wastewater Recycling: INDIA H2O Project", 16th October, 2020,	16 October, 2020	Online, Kolkata, India
Chaired, "10 <sup>th</sup> International Conference on Sustainable Waste Management towards Circular Economy,	2-7 December, 2020	Online, Kolkata, India

### 6. Major Achievements of the Centre during the year:

#### D. Any Other Major Achievements:

- Four Books by Prof. Sadhan Kumar Ghosh of mechanical engineering department have been published *within 30 days during 21 November – 21 December, 2021*. Books are entitled, 1) ***Sustainable Management of Wastes through Co-processing***, authored by Prof. Sadhan Kumar Ghosh, Dr. K. H. Karstensen, Norway and Mr. U. V. Parlikar; published by Springer Nature and the first book on the subject ever published in the worlds, 2) ***Circular Economy: Recent Trends in Global Perspective***, Springer Nature; Editors: Sadhan K. Ghosh, India & Sannidhya K Ghosh, USA; Published by Taylor & Francis Ltd, UK; 3) ***Biomethane through Resource Circularity: Research, Technology and Practices***; by Taylor & Francis ; Editors: Sadhan Kumar Ghosh , M. Nelles, Germany , H. N. Chanakya & D. C. Baruah; and 4) ***Circular Economy in Construction Industry***; Publisher Taylor & Francis Ltd, UK; Editors: Sadhan Kumar Ghosh, Sannidhya Kumar Ghosh, USA, B. G. Mohapatra and R. L. Mersky, USA. All books are available online. The books have been released in 11th IconSWM-CE & IPLA Global Forum 2021 during Dec 1-4.
- Prof. Sadhan Kumar Ghosh of mechanical engineering department, organised the ***11th IconSWM-CE & IPLA Global Forum 2021*** (11<sup>th</sup> International Conference on sustainable Waste Management and Circular Economy & IPL Global Forum), during Dec 1 to 4, 2021 using online platform from Jadavpur University, which was ***attended by experts and delegates from Forty-Eight (48) countries***. Prof. Ghosh is the Founder and the Chairman of the international platform, IconSWM-CE, being the biggest international platform in India on Waste Management.
- Prof. Sadhan Kumar Ghosh, of mechanical engineering department were invited and delivered keynote speech and plenary speech in many countries, namely, Widener University USA, Tsinghua University China, Obida University Hungary, Chittagong University of Engg& Tech. (CUET), Bangladesh, Central Environmental Authority, Sri Lanka, Centre for East Asian Studies & ASEAN Indonesia, Covenant University Nigeria, Central Bicol State Agricultural University Philippines, ISPONRE Vietnam, The Research and Technologies Centre of Energy (CRTEN), Tunisia, AND UNCRD, Japan during April 2021 onwards, using virtual platforms.
- Prof. Sadhan Kumar Ghosh, of mechanical engineering department has been assigned the responsibility of authoring Chapter as International Expert on Bio Medical Waste Management in the 2<sup>nd</sup> state of 3R & Circular Economy to be published by the UNCRD UN/DESA and the Ministry of Environment, Japan to be published in 2023.

## Annual Report 2020-2021

### TRANSLATION OF INDIAN LITERATURES (CENTIL)

[Department of Comparative Literature]

Phone: 033-2457-2156

Coordinator: Dr. Sayantan Dasgupta

E-mail: til.centre@jadavpuruniversity.in

#### 1. Vision and Mission of the Centre:

##### A. Vision:

The Centre for Translation of Indian Literatures (CENTIL), which is part of the Department of Comparative Literature, Jadavpur University, envisions itself as a nodal body for establishing the importance of translation in India and for contributing to consolidating the archive of Indian literature available in translation.

##### B. Mission:

The mission of CENTIL is to

- highlighting the importance of translation in the context of a multilingual space like India,
- consolidating the archive of Indian literature available in English and Bangla translation, and (c) imparting translation training to create a pool of trained translators.

#### 2. Academic Activities:

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
UGC-sponsored Certificate Course in "Translation as a Skill"	6 months	2020-2021	40

#### 3. Faculty Members in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
	1	1	2

#### 4. Research Activities:

A. Areas of Research Activities : Translation, Indian literature, marginalized and indigenous literature (Broad Areas)

##### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No./Article No., Year of publication)

- Sayantan Dasgupta, "Manto Reloaded, Hussein Remixed: Exploring Intermedial Translation in South Asia" in *Jadavpur Journal of Comparative Literature* 56. Kolkata: Jadavpur University, 2020.
- Sayantan Dasgupta, "Celebrating Nabaneeta Dev Sen: Of Teleportation and Time Travel" in A J Thomas ed., *Indian Literature* 316. New Delhi: Sahitya Akademi. March-April 2020.
- Sayantan Dasgupta, "Chandrabati's Ramayan" in A J Thomas ed., *Indian Literature* 320. New Delhi: Sahitya Akademi, November-December 2020.
- Sayantan Dasgupta, "Bringing Home Magic Realism: Manabendra Bandyopadhyay" in A DevSened., *Indian Literature* 321. New Delhi: Sahitya Akademi, January-February 2021.

## Annual Report 2020-2021

5. Sayantan Dasgupta, "Careful Custodian of Culture: Swapan Majumdar" in A Dev Sen ed., *Indian Literature 321*. New Delhi: Sahitya Akademi, January-February 2021.
6. Sayantan Dasgupta, "The Modern Indian Short Story" (Manabendra Bandyopadhyay). Tr. In A Dev Sen ed., *Indian Literature 321*. New Delhi: Sahitya Akademi, January-February 2021.

**E. Research Articles Published in Edited Volumes during the year:  
(Name of authors, Title of the article, Title of the Book, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)**

1. Sayantan Dasgupta, "Tale of a Brahmin and a Shudrani" (Kalyani Thakur). Tr. In Panchali Ray ed., *Women Speak Nation*. London and New York: Routledge, 2020.
2. Sayantan Dasgupta, "Translating *Chandrika* in its Centenary Year" in Kabita Lama ed., *Chandrika: Shatabarshiki Visheshank*. Darjeeling: Gorkha Jan Pustakalaya. December 2020.

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year :**

**E. Orientation Courses/ Refresher Courses Attended:**

Name of the Teacher	Title of the Course	Place	Date
Shradhanjali Tamang	UGC Sponsored Faculty Induction Programme (Guru Dakshata)	UGC HRDC Jadavpur University	21December, 2020--28January, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Sayantan Dasgupta	Invited lectures (2) on "Academic Social Responsibility and Pedagogy in the Humanities: Towards Interdisciplinarity" and "Academic Social Responsibility and the Translation and Teaching of Indigenous and Marginalised Literatures"	Faculty Induction Programme (Jadavpur University)	Kolkata	22.02.2021
Sayantan Dasgupta	Invited Lecture on "Manto Reloaded, Husain Remixed: Exploring Intermedial Translation in South Asia"	Refresher Course of the Department of English on "Protean Wor(1)ds: Literary and Cultural Metamorphosis"	Kolkata	02.03.2021
Sayantan Dasgupta	Invited Lectures on "Exploring Intermedial Translation in South Asia" (2)	Faculty Induction Programme (Jadavpur University)	Kolkata	16.03.2021
Sayantan Dasgupta	Invited Lecture on "Contextualising Comparative Literature"	Refresher Course Organised by The Department Of English,	Aligarh	16.01.2021

**Annual Report 2020-2021**

		Aligarh Muslim University		
<b>Sayantana Dasgupta</b>	Invited Lecture on “Contextualising Comparative Literature: The Indian Scenario”	Refresher Course on “Comparative Literary Studies: Indian Dimension” organized by Department of Comparative Indian Language and Literature, University of Calcutta	Kolkata	04.03.2021
<b>Sayantana Dasgupta</b>	Invited Lectures (2) on “In Black and White and Colour: Tintin Travels to the Congo” and “Academic Social Responsibility and Pedagogy in the Humanities: Towards Interdisciplinarity”	Faculty Induction Programme(Jadavpur University)		01.03.2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “India in Translation; Translation in India”	Faculty Induction Programme (Jadavpur University)	Kolkata	12.03.2021
<b>Sayantana Dasgupta</b>	Invited Lecture on Literary Studies in India: The Curious Case of Comparative Literature	Refresher Course on ‘Literary Studies and the Question of Interdisciplinarity’ Organised by the Department of Comparative Literature	Kolkata	January, 2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “The Curious Case of Indian Literature”	Exchange Programme Orientation Techno International New Town	Kolkata	17.02.2021
<b>Sayantana Dasgupta</b>	Invited Lecture on “Englishing India: Turn-of-the-Century Translation Practices”	British Centre for Literary Translation, University of East Anglia, Seminar Talk	Norwich	09.12.2021
<b>Sayantana Dasgupta</b>	Chaired a session on <i>Tarjama</i>	International Conference of the Comparative Literature Association of India on “Persian-Arabic Poetics in the Context of Indian Poetics: Readings, Recoveries and Re-orientations in South Asian Literatures” organized in collaboration with the Bhagat Phool Singh Mahila Vishwavidyalaya and the National Council	Sonepat	16.03.2021

## Annual Report 2020-2021

		for Promotion of Urdu Language (NCPUL),		
<b>Sayantana Dasgupta</b>	Invited Lecture on "Travels with Tintin"	Department of English, Shibpur Dinobundhoo Institution (College)	Kolkata	08.08.2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Name of the Teacher / RS	Title of the Paper	Name of the Conference / Seminar	Place	Duration
Shradhanjali Tamang	Adivasi Tamang Jaatiko Maukhik Parampara	88 <sup>th</sup> Tamang Pahichan Diwasko Ausarma Ayojit, 5 <sup>th</sup> Tamang Gyan Mahatsov	Kathmandu (Online Webinar)	6-8 September, 2020

**6. Major Achievements of the Centre during the year:**

**A. Fellowships/Awards/Honours received by the Faculty Members from Academies/ Government/ Recognized National/International Bodies**

Name of the Faculty Member	Name of the Fellowship/ Award/ Honour	Awarding Institute	Place
Sayantana Dasgupta	Nominated member, English Advisory Board, Sahitya Akademi	Sahitya Akademi	New Delhi

### VICTORIAN STUDIES

Ph : 033-2414-6681

033-2457-2145

Coordinator: Dr Saswati Halder

Joint Coordinator: Dr Sutanuka Ghosh

E-mail : [saswati.halder@jadavpuruniversity](mailto:saswati.halder@jadavpuruniversity)

**1. Vision and Mission of the Centre:**

**A. Vision:**

The Department of English, Jadavpur University, has always been very strong particularly in the specialized field of Victorian Studies, with Professors Jashodhara Bagchi, Sajni Mukherji, Sheila Lahiri Choudhury, Chandreyee Niyogi leading the way. The present members of the department who specialize in the field would like to carry on their legacy and make the Centre for Victorian Studies set up in 2010 by Professor Shanta Dutta, a meeting place for fruitful research in the area.

**B. Mission:**

- The Centre has an interdisciplinary approach to research and has worked in collaboration with the sister departments of the Arts Faculty of Jadavpur University, like Comparative Literature, History and Bengali. We hope to make it function as a nodal centre for all researchers / college teachers

## Annual Report 2020-2021

working in the area in other Colleges and Universities of West Bengal as well. Our next objective is to build up a centre of excellence at the national level by collaborating with the English Departments of the leading Indian Universities. We have revived the tradition of regularly holding ‘Work-in-progress’ seminars where young M. Phil and Ph.D. students working on the Victorian period can discuss their research projects and benefit from constructive criticism / suggestions from more experienced faculty members.

- The Centre occasionally invites established scholars of repute in the field to visit our Department so that our students can benefit from their expertise. The visiting faculty in the recent past includes **Prof. Sambudha Sen** (Delhi University), **Prof. Phillip Mallett** (University of St. Andrews, Scotland), **Dr Gowan Dawson** (‘Victorian Studies Centre’, University of Leicester, UK), **Prof. Deborah Logan** (Western Kentucky University & visiting Fulbright scholar), **Prof. Douglas Tallack**, (Professor of American Studies, Pro-Vice-Chancellor, International and Head of the College of Arts, Humanities & Law, University of Leicester, UK), **Dr. Barnita Bagchi**, (Comparative Literature Section, Department of Languages, Literature, and Communication, Utrecht University, Netherland). We appreciate their valuable inputs and hope to make such visits an annual feature of the Centre’s programmes.
- We would like to start working towards setting up a national data base of all research work being undertaken in the area in the various colleges and universities of India. This will help to safeguard against needless overlapping in research projects/ theses and prevent waste of time, energy and resources.
- Somewhat more ambitiously, we hope to build up a specialized library of books and journals dedicated to the Victorian period. Any primary material or unpublished resource that is made available to us will be a very welcome addition.

### 3. **Faculty Members in the Centre :**

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
9	3	1	13

### 4. **Research Activities:**

#### A. **Areas of Research Activities :**

(Broad Areas) The Centre for Victorian Studies is broadly concerned with scholarship, new research and a keen understanding of nineteenth century literary history and theory. It is committed not only to explore and integrate theories and methods of various fields of inquiry - gender, art, history, music, anthropology, psychology, military studies, urbanism, literary criticism, religious studies, social history, economics, popular culture studies, and the history of science, among others - but also tests and opens up the very limits of disciplinary boundaries.

#### D. **Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

**(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)**

The Confidential Clerk, is an online journal of the Centre for Victorian Studies, Jadavpur University. Interdisciplinary, international and innovative, the journal is committed to provide a forum for original and unpublished research papers from students, young researchers and established authors. The forthcoming seventh issue of The Confidential Clerk, is on ‘Representations: Health and Morbidity in 19<sup>th</sup> Century Britain and its Colonies.’



## Annual Report 2020-2021

### V. RAVI CHNDRAN CENTRE FOR PHARMACEUTICAL SCIENCES [Department of Pharmaceutical Technology]

Phone: 033-2414-6677

033-2457-2588

Coordinator: Prof. Biswajit Mukherjee

E-mail: vrccps.centre@jadavpuruniversity.in

#### 1. Vision and Mission of the Centre:

##### A. Vision:

Centre for Advanced Research in Pharmaceutical Science (Ravi Chandran Endowment Fund) (CARPS), Jadavpur University, Kolkata, has been working on pioneer research related to formulation development and drug targeting. We work on drugs targeting both conventional and nonconventional ways, emphasizing nanosize drug formulation and brain delivery and other biochemical aspects of neuropharmacology, cancer, and diabetes. The centre is working in tandem with the Pharmaceutics Research Laboratory of Prof. (Dr.) Biswajit Mukherjee, 2<sup>nd</sup> floor, Department of Pharmaceutical Technology, Jadavpur University uses some cooperation and mutual benefit. Besides, the centre provides fellowships to one B. Pharm. Under Graduate students of each year on the merit-cum-means basis every year and also funds a Research Scholar for PhD and conduct a various seminar and invited lectures on the related area.

##### B. Mission:

Formulation and development, site-specific drug targeting by conventional and nonconventional approaches for cancer chemoprevention and diabetes.

Neurobiochemical and neuropharmacological study associated with brain ageing.

To develop the centre as a unit in Eastern India to research to resolve and assist formulation development and drug targeting related research.

Further, provide fellowship to U.G. students on merit-cum-means basis.

Financial assistance in terms of fellowship to Ph.D scholars to carry out research work in the area as mentioned above.

#### 2. Academic Activities :

##### A. Programmes offered:

Name of the Programme	Duration (years)	Number of students enrolled during the academic year (year-wise for the course)	
		Year	No. of Students
Funding Ph.D Scholar	Three years	1 <sup>st</sup> year	1

#### 3. Faculty Members in the Centre :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1			1

#### 4. Research Activities:

##### A. Areas of Research Activities : (Broad Areas)

Since its inception, the centre has been working in area formulation development, emphasizing nanocarrier-mediated drug delivery against different types of malignancy, delivery of drugs to the brain through the blood-brain barrier (BBB), treatment of fatal fungal infections in lungs. With the recent development in the treatment of fatal metabolic disorders and fungal infections, the centre has shifted its focus towards the site-specific targeting of diseased sites for better therapeutic outcomes by conventional and nonconventional approaches.

## Annual Report 2020-2021

Since February 2017, ICMR Emeritus Scientist Prof. Mrinal Kanti Poddar, Ph. D, DSc, has joined the centre, engaged in conducting research and supervising work of the doctoral student. This team has been working with Prof. (Dr.) Biswajit Mukherjee, coordinator, CARPS JU in the following research areas funded by the Indian Council of Medical Research (ICMR) and the Ravichandran Endowment Fund. The details of the research work have been given below:

(a) Drug delivery and drug targeting by conventional and nonconventional approaches in various types of malignancy, fungal infections in lung and peripheral nerves,  
(c) Neurochemical and behavioural studies on the role of calorie restriction in ageing, GABAergic activity and immune response. The work has been funded by the Indian Council of Medical Research (ICMR) [ref. no. 74/8/2016-Pers (EMS)].

### Name of the Fellows working:

#### Ms Apala Chakraborty

**Name of the project title:** Neurochemical and behavioural studies on the role of calorie restriction in ageing, GABAergic activity and immune response. The work has been funded by the Indian Council of Medical Research (ICMR) [ref. no. 74/8/2016-Pers (EMS)].

**Brief outline:** The study's objective is to investigate the ameliorating effect of ageing related to cognitive and down regulation of immune response with ageing through manipulating calorie intake about inhibitory neurotransmitter activity and immune response parameters. The study implements biochemical estimation, immune assay and behavioural studies performed over male albino Wistar strain rats of different age groups.

#### Research Outcome:

**Chakraborty A**, Banerjee S, Mukherjee B, Poddar M.K. "Calorie restriction improves ageing-induced impairment of cognitive function about deregulation of brain regional GABA system and corticosterone status." *Mech of Ageing and development*. 2020;189, 111242. DOI: <https://doi.org/10.1016/j.mad.2020.111248>

**Chakraborty A**, Banerjee S, Mukherjee B, Poddar M.K. "Calorie Restriction Modulates Neuroimmune System Differently in Young and Aged Rats." *International Immunopharmacology*(2021).100 (2021) 108141.

Poddar M K, Banerjee S, **Chakraborty A**, Dutta D. "Metabolic disorder in Alzheimer's disease." *Metabolic Brain Disorder* 2021: 36, 781–813. <https://doi.org/10.1007/s11011-021-00673-z>.

Poddar MK, **Chakraborty A** and Banerjee B (Jan 27 2021). *Neurodegeneration: Diagnosis, Prevention, and Therapy, Oxidoreductase*, Mahmoud Ahmed Mansour, IntechOpen, DOI: 10.5772/intechopen.94950. Available from: <https://www.intechopen.com/books/oxidoreductase/neurodegeneration-diagnosis-prevention-and-therapy>

#### Ms. Manisheeta Ray, SRF, CARPS, J.U.

#### Name of the project title:

Development of Formulations On Pure Natural Compounds

#### Research Outcomes:

1. Guar gum-based nanomaterials in drug delivery and biomedical applications; Mukherjee B, Kumari L, Ehsan I, Ghosh P, Banerjee S, Chakraborty S, Ray M, Al Hoque A, Sahoo R. Guar gum-based nanomaterials in drug delivery and biomedical applications. In *Biopolymer-Based Nanomaterials in Drug Delivery and Biomedical Applications 2021* Jan 1 (pp. 143-164). Academic Press.
2. Transdermal Nanomedicines for Reduction of Dose and Site-Specific Drug Delivery; Mukherjee B, Sengupta S, Banerjee S, Dhara M, Al Hoque A, Kumari L, Ray M, Ehsan I, Mukherjee A. Transdermal Nanomedicines for Reduction of Dose and Site-Specific Drug Delivery. In *Nano Medicine and NanoSafety 2020* (pp. 175-211). Springer, Singapore.

**Annual Report 2020-2021**

**C. Doctoral Research Activities:**

Number of students awarded Ph.D during the year.	Number of Ph.D students registered in the Centre
2	

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

(Name of authors, the title of the article, *Name of the Journal*, Volume No., Page No/Article No., Year of publication)

Authors	Title	Journal	Volume: issue; page numbers	Year
Apala Chakraborty, Soumyabrata Banerjee, <b>Biswajit Mukherjee</b> , Mrinal K Poddar, Nahid Ali	Calorie restriction modulates the neuro-immune system differently in young and aged rats	International Immuno-pharmacology	100 (2021) 108141	2021
Banerjee S, <b>Mukherjee B</b> , Poddar MK, Dunbar GL.	Carnosine improves ageing-induced cognitive impairment and regional brain neurodegeneration in relation to the neuropathological alterations in the secondary structure of amyloid-beta (A $\beta$ ).	Journal of Neurochemistry	158(3):710-723	2021
Apala Chakraborty, Soumyabrata Banerjee, <b>Biswajit Mukherjee</b> , Mrinal Kanti Poddar	Calorie restriction improves aging-induced impairment of cognitive function in relation to deregulation of corticosterone status and brain regional GABA system.	Mechanism of Ageing and Development.	Vol: 198 No: 111248	2020
Chakraborty S, Dlie ZY, Chakraborty S, Roy S, <b>Mukherjee B</b> , Besra SE, Dewanjee S, Mukherjee A, Ojha PK, Kumar V, Sen R.	Aptamer-Functionalized Drug Nanocarrier Improves Hepatocellular Carcinoma toward Normal by Targeting Neoplastic Hepatocytes.	Molecular Therapy- Nucleic Acids.	5;20:34-49	2020
Chakraborty S, Dlie ZY, <b>Mukherjee B</b> , Besra SE, Sengupta S, Sen R, Mukherjee A.	A Comparative Investigation of the Ability of Various Aptamer-Functionalized Aptamer-Functionalized Drug Nanocarriers to Induce Selective Apoptosis in Neoplastic Hepatocytes: In Vitro and In Vivo Outcome.	AAPS PharmSciTech	21(3):89	2020

**Annual Report 2020-2021**

MK Poddar, S Banerjee, A Chakraborty, D Dutta	Metabolic disorder in Alzheimer's disease	Metabolic Brain Disease,	1-33	2021
---	---	--------------------------	------	------

**E. Research Articles Published in Edited Volumes during the year:  
(Name of authors, title of the article, *Title of the Book*, Name of the Editors (eds.), page no., Name of the Publisher, ISBN/ISSN No., Year)**

<b>Name of the Author(s)</b>	<b>Title of the Book/Monograph</b>	<b>Name of the Publisher</b>	<b>ISSN/ISBN No.</b>	<b>Year</b>
<b>Mukherjee B</b> , Dhara M, Dutta D, Chakraborty A, Chakraborty S, Sengupta S, Mondal L, Dutta L, Pal K. 2021 Jan 1 (pp.3-28). Academic Press.	Biopolymer-based materials in nanomedicine: Synthesis and characterization. In: In Biopolymer-Based Nanomaterials in Drug Delivery and Biomedical Applications	Academic Press, Elsevier	B978-0-12-820874-8.00017-8	2021
<b>Mukherjee B</b> , Kumari L, Ehsan I, Ghosh P, Banerjee S, Chakraborty S, Ray M, Al Hoque A, Sahoo R. 2021 Jan 1 (pp. 143-164). Academic Press.	Guar gum-based nanomaterials in drug delivery and biomedical applications. In Biopolymer-Based Nanomaterials in Drug Delivery and Biomedical Applications	Academic Press, Elsevier	B978-0-12-820874-8.00016-6	2021
Mrinal K Poddar, Apala Chakraborty, Soumyabrata Banerjee	Neurodegeneration: Diagnosis, Prevention, and Therapy	Intech open, Oxidoreductase	Chapter 9, page no 131-167	2021
<b>Biswajit Mukherjee</b> , Soma Sengupta, Soumyabrata Banerjee, Moumita Dhara, Ashique Al Hoque, Leena Kumari, Manisheetta Ray, Iman Ehsan, and Alankar Mukherjee	Transdermal Nanomedicines for Reduction of Dose and Site-Specific Drug Delivery, In: NanoMedicine and NanoSafety, M. K. Das, Y. V Pathak (eds.)	Springer Nature Singapore Pte Ltd.	978-981-15-6254-9	2020
<b>Biswajit Mukherjee</b> , Samrat Chakraborty,	Conventional and Nonconventional Approaches to Site-Specific Targeting of	Springer Nature Switzerland AG	978-3-030-41857-1	2020

## Annual Report 2020-2021

Iman Ehsan, Apala Chakraborty, Leena Kumari, Alankar Mukherjee, Sounak Sarkhel.	Nanotherapeutics in Some Infectious Diseases and Metabolic Disorders. (Chapter 6.), In: Nanoformulations in Human Health. 2020 S. Talegaonkar, M. Rai (eds.)			
---	---	--	--	--

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

**B. Books/Monographs Edited :**

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Biswajit Mukherjee, Johan Engblom, Paul Chi-Lui Ho and Veranja Karunaratne	Editorial: Advances in Drug Formulation	Front Pharmacol	1663-9812	2020

**G. Papers presented in Seminar/Workshop/Conference/Symposium:**

Name of the Teacher / R.S.	Title of the Paper	Name of the Conference / Seminar	Place	Duration
A Chakraborty, Banerjee S, Mukherjee B, Poddar M.K	Role of calorie restriction on aging- induced behavioral activity in relation to the Cerebrocortical and Hippocampal GABA system and Corticosterone status.	AOCN-2021 (Virtual mode)	Taiwan,	

### WELDING TECHNOLOGY

**[Department of Metallurgical & Material Engineering]**

Phone: 033-2457-2325/2265/2174

Coordinator: Prof. Akshay Kr. Pramanick

E-mail: wtc.centre@jadavpuruniversity.in

**1. Vision and Mission of the Centre:**

**A. Vision:**

To provide students a well equipped lab to keep themselves up-to-date and alive in order to seek new frontiers of best welding skills, this will make our students thirsty for more knowledge beyond the realms of our classroom teaching.

## Annual Report 2020-2021

**B. Mission:**

Welding Tecnology Centre, Jadavpur University is a nonprofit institution dedicated to welding training and education excellence

**3. Faculty Members in the Centre :**

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1			1

**4. Research Activities:**

**A. Areas of Research Activities:** Various welding of similar and dissimilar materials varying various process parameters.

**B. Major Research Projects :**

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
To develop procedure for joining for next generation high temperature material to be used for supercritical/ultra super critical power plant by Friction Stir Welding	WTC	Prof. Dipankar Sanyal	Ministry of Steel	3 years

**D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

(Name of authors, Title of the article, *Name of the Journal*, Volume No., Page No./Article No., Year of publication)

- Sourav Debnath**, Akshay Kumar Pramanick, "Comparative Study between Silica gel- Aluminium & Crystalline silica- Aluminium Composites Developed through P/M Route". Proceedings of the IEEE (ISSN 0018-9219), IEEE Xplore, pp. 193-197, August 2020. doi: 10.1109/VLSIDCS47293.2020.9179901
- Sourav Debnath**, Rajib Gupta, Akshay Kumar Pramanick, "Development of Aluminium Based Magnetic Composites & Study on Chemical Properties at Sea Water Environment". Proceedings of the IEEE (ISSN 0018-9219), IEEE Xplore, pp. 1-5, August 2020. doi: 10.1109/VLSIDCS47293.2020.9179916
- Sourav Debnath**, Akshay Kumar Pramanick, "Study on Various Properties of Fabricated Crystalline silica- reinforced Aluminium Metal Matrix Composites". Ethics and Information Technology, Springer, 2(2), pp. 147-150, 2020. DOI: <http://doi.org/10.26480/etit.02.2020.147.150>
- Sourav Debnath**, Soumyajit Roy, Akshay Kumar Pramanick, "An Exploratory Comparative Study of Fabricated Silica- Aluminium Metal Matrix Composites with Casted Aluminium-Silicon Alloys". JPCS- IOP Publishing (ISSN 17426588), 1579 (2020) 012014, pp. 1- 6. doi:10.1088/1742-6596/1579/1/012014
- Sourav Debnath**, Akshay Kumar Pramanick, "In vitro Biocompatibility Study on Implantable Crystalline silica- Aluminium Metal Based Hybrid Composites". Lecture Notes in Bioengineering-Springer, pp. 1-8, 2021. [https://doi.org/10.1007/978-981-33-6915-3\\_5](https://doi.org/10.1007/978-981-33-6915-3_5)

## Annual Report 2020-2021

6. **Sourav Debnath**, Akshay Kumar Pramanick, “Evaluation of Mechanical Properties of Developed Graphite- reinforced- Aluminium Metal Based Composites”. IOP Conf. Series: Materials Science and Engineering, pp. 1-6, 1080 (2021) 012018
7. **Soumyajit Roy**, Akshay Kumar Pramanick, Prasanta Kumar Datta, “Quality Analysis of Tribal Casting Products by TOPSIS for Different Gating System”. IOP Conf. Series: Materials Science and Engineering, pp. 1-6, 1080 (2021) 012014, doi:
8. **Soumyajit Roy**, Akshay Kumar Pramanick, Prasanta Kumar Datta, “Precise Filling Time Calculation of Thin Walled Investment Casting in Hot Mold”, Journal of the Brazilian Society of Mechanical Science and Engineering, Vol.-42, issue 10, Oct 2020, [<https://doi.org/10.1007/s40430-020-02634-6>]

### F. Research Articles Published in Conference Proceedings during the year:

(Name of authors, Title of the paper, Title of the Proceedings, page no., Name of the Publisher, ISSN/ISBN No, Year)

1. **Sourav Debnath**, Rajib Gupta, Akshay Kumar Pramanick, “Development of Aluminium Based Magnetic Composites & Study on Chemical Properties at Sea Water Environment”. 2<sup>nd</sup> International Conference on VLSI Device, Circuit and System (IEEE VLSI DCS- 2020), organised by IEEE Electron Device MSIT Student Branch Chapter at Meghnad Saha Institute of Technology, Kolkata from 18 -19 July 2020.
2. **Sourav Debnath**, Akshay Kumar Pramanick, “Comparative Study between Silica gel- Aluminium & Crystalline silica – Aluminium Composites Developed through P/M Route”. 2<sup>nd</sup> International Conference on VLSI Device, Circuit and System (IEEE VLSI DCS- 2020), organised by IEEE Electron Device MSIT Student Branch Chapter at Meghnad Saha Institute of Technology, Kolkata from 18 -19 July 2020.
3. **Sourav Debnath**, Akshay Kumar Pramanick, “Study on Various Properties of Fabricated Crystalline silica- reinforced Aluminium Metal Matrix Composites”. 1<sup>st</sup> International Conference on Contemporary Issues in Computing (ICCIC- 2020) held from 25 –26 July 2020 at IETE Sector V, Salt Lake, Kolkata.
4. **Sourav Debnath**, Akshay Kumar Pramanick, “In vitro Biocompatibility Study on Implantable Crystalline silica- Aluminium Metal Based Hybrid Composites”. International Conference on Advances in Medical Physics and Healthcare Engineering (IEEE AMPHE 2020) organised by Department of Physics (in Collaboration with the School of Engineering & Technology) Adamas University, Kolkata and technical Co-sponsorship with IEEE- Kolkata Section, held at Adamas University, Kolkata from 25<sup>th</sup>-26<sup>th</sup> September 2020.
5. “Evaluation of Mechanical Properties of Developed Graphite- reinforced- Aluminium Metal Based Composites”, presented by **Sourav Debnath** at 3<sup>rd</sup> International Conference on Advances in Mechanical Engineering and its Interdisciplinary Areas (ICAMEI-2021), organized by College of Engineering and Management, Kolaghat from 5-7 January, 2021.

**SPECIAL PROGRAMME**



## Annual Report 2020-2021

### GLOBAL CHANGE PROGRAMME

Phone: 033-2457-2389/2815

Coordinator: Dr. Anupam Debsarkar

E-mail: anupamdeb.sarkar@jadavpuruniversity.in

#### 1. Vision and Mission of the Programme:

##### Primary Aim is capacity building through

- Targeted research
- Short-term training programmes
- Outreach activities
- Information dissemination

#### 4. Research Activities :

##### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration
IDEEA : Indian Zero Carbon Energy Pathways	Contract with GCP-JU	Prof. Anupam Debsarkar	Environmental Defense Fund	August 2020- Till Date

##### D. **Research Articles Published in Journals during the year (International/National Peer-reviewed journals)**

1. Soumitra Banerjee, Siddhartha Datta and Anupam Debsarkar, “Artificial neural network modelling for decolorization of textile dye mixture using low cost adsorbent”, **Research Journal of Chemistry and Environment**, Vol. 24, (No. 5), pp - 57-60, May-2020.
2. Satiprasad Sahoo, AnirbanDhar, Anupam Debsarkar, Biswajeet Pradhan and Abdullah M. Alamri, “Future Water Use Planning by Water Evaluation and Planning System Model”, **Water Resources Management (Springer Publication)**, Vol-34, pp-4649-4664, Sept-Oct-2020, <https://doi.org/10.1007/s11269-020-02680-8>.
3. SatiprasadSahoo, AnirbanDhar, Anupam Debsarkar & Amlanjyoti Kar, “Can Groundwater Scenarios Be Predicted from Future Regional Climatic Input Variables?”, **Water Resources Management (Springer Publication)**, Vol-34, pp.-4815-4830, Oct-2020, <https://doi.org/10.1007/s11269-020-02692-4>.
4. Satabdi Biswas, Anupam Debsarkar and Manoranjan Paul, “Water Insufficiency, Health Hazards and Rainwater Harvesting in North 24 Parganas, West Bengal, India: Results of a Socioeconomic Survey”, **Journal of Economic Theory and Practice (Arthaniti) (Sage Publication)** pp-1-19, November, 2020, <https://doi.org/10.1177/0976747920963399>
5. Sanjib Kumar Maiti, Tumpa Hazra and Anupam Debsarkar, “Removal of total chromium from landfill leachate by electrocoagulation process using iron electrodes: effect of some major operational and chemical parameters”, **J. Indian Chem. Soc.**, Vol. 97, No. 11b, November 2020, pp. 2453-2460.
6. Argha Kamal Guha, Anirban Kundu Chowdhury, Anupam Debsarkar and Shibnath Chakrabarty, “Assessment of Noise Pollution of Kolkata Metro Railway System and Its Impact on Urban Receptors- A Case Study”, **International Journal of Research in Advent Technology**, Vol.8, No.11, November 2020, E-ISSN: 2321-9637.

## Annual Report 2020-2021

7. Sudipta Ghosh (Nath), Anupam Debsarkar, Amit Dutta, Subhrajyoti Bhandary, Deepak Chopra, “Delivering Arsenicfree Drinking Water -Made Practically Possible: Continuous Scale Electrochemical Arsenic Remediation Process Furnished, based on Experimental Studies and ANN Simulation”, **Environment, Development and Sustainability (Springer Publication)**, Vol-23, No.-10, pp-13087-13112, January, 2021, <https://doi.org/10.1007/s10668-020-01200-3>
8. Shantanu Bhunia, Ankita Bhowmik, Rambilash Mallick, Anupam Debsarkar, Joydeep Mukherjee, “Application of recycled slaughterhouse wastes as an organic fertilizer for successive cultivations of bell pepper and amaranth”, **Scientia Horticulturae (Elsevier Publication)**, 280, January (2021) 109927, <https://doi.org/10.1016/j.scienta.2021.109927>
9. Creutzig, Felix; Callaghan, Max; Ramakrishnan, Anjali ; Javaid, Aneeque; Niamir, Leila; Müller-Hansen, Finn; Minx, Jan; Sovacool, Benjamin; Afroz, Zakia; Andor, Mark; Antal, Miklós; Court, Victor ; Das, Nandini; DÍAZ-JOSÉ, JULIO; Doebbe, Friederike; Figueroa, Maria; Gouldson, Andy; Haberl, Helmut; Hook, Andrew; Ivanova, Diana; Lamb, William F.; Maizi, Nadia; Mata, Érika; Nielsen, Kristian Steensen; Onyige, Chioma Daisy; Reisch, Lucia; Roy, Joyashree; Scheelbeek, Pauline; Sethi, Mahendra; Some, Shreya; Sorrell, Steven; Tessier, Mathilde; Urmee, Tania; Virág, Doris; Wang, Can; Wiedenhofer, Dominik; Wilson, C (2020), “ Reviewing the scope and thematic focus of 100,000 publications on energy consumption, services and social aspects of climate change: A big data approach to demand-side mitigation”, **Environmental Research Letters**, 16 (2021) 033001. <https://doi.org/10.1088/1748-9326/abd78b>
10. **Roy, Joyashree Roy**, Sheikh Tawhidul Islam and Indrajit Pal (2020), “Energy, Disaster, Climate Change: Sustainability and Just Transitions in Bangladesh”, **International Energy Journal**, 20 (Special Issue 3A), pp 373-380. [https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393\\_03417e310006431a8b0a028acf442e95.pdf](https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393_03417e310006431a8b0a028acf442e95.pdf)
11. Matthias Honegger, Axel Michaelowa & **Joyashree Roy** (2020), “Potential implications of carbon dioxide removal for the sustainable development goals”, **Climate Policy**, DOI: 10.1080/14693062.2020.1843388
12. **Roy, Joyashree Roy**, Sheikh Tawhidul Islam and Indrajit Pal (2020), “White Paper On Energy, Disaster, Climate Change: Sustainability and Just Transitions in Bangladesh”, **International Energy Journal**, 20 (Special Issue 3A), pp579-580, [https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393\\_7801b58ce5d64fec820e285416cee81f.pdf](https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393_7801b58ce5d64fec820e285416cee81f.pdf)
13. Mahmud, H. & **Roy, J.** (2020), “Sustainable Energy Sector for Fast Growing Economy like Bangladesh: How Relevant are the Past Asian Precedents?”, **International Energy Journal**, 20 (Special Issue 3A), 381-394. [https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393\\_127b64bd14334e4c8a4377acde855bd8.pdf](https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393_127b64bd14334e4c8a4377acde855bd8.pdf)
14. **Roy, J.**, Mahmud, H., Assadi, M., Iman, N & Nikpey, H. (2020), “Moving beyond Gas: Can Bangladesh Leapfrog and Make the Energy Transition Just by Exploring the Role of Geothermal Energy and Gas Infrastructure?”, **International Energy Journal**, 20 (Special Issue 3A), 395-410. [https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393\\_2ffcef28741146789668e9e2f25f5e31.pdf](https://ed7682cf-e236-4998-af90-23aace04b9c8.filesusr.com/ugd/dc0393_2ffcef28741146789668e9e2f25f5e31.pdf)
15. Das Nandini and **Joyashree Roy** (2020), “India can increase its mitigation ambition: An analysis based on historical evidence of decoupling between emission and economic growth”, **Energy for Sustainable Development**, Volume 57, Pages 189-199, ISSN 0973-0826, <https://doi.org/10.1016/j.esd.2020.06.003>.
16. Karstensen Jonas, **Joyashree Roy**, Barun Deb Pal, Glen Peters, Robbie Andrew (2020), “Key Drivers of Indian Greenhouse Gas Emissions”, *Economic & Political Weekly*, Vol. 55, Issue No. 15, 11 Apr.

## Annual Report 2020-2021

- pp 46-53. <https://www.epw.in/journal/2020/15/special-articles/key-drivers-indian-greenhouse-gas-emissions.html>
17. Rissman Jeffrey, Chris Bataille, Eric Masanet, Nate Aden, William R. Morrow III, Nan Zhou, Neal Elliott, Rebecca Dell, Niko Heeren, Brigitta Huckestein, Joe Cresko, Sabbie A. Miller, **Joyashree Roy**, Paul Fennell, Betty Cremmins, Thomas Koch Blank, David Hone, Ellen D. Williams, Stephane de la Rue du Can, Bill Sisson, Mike Williams, John Katzenberger, Dallas Burtraw, GirishSethi, He Ping, David Danielson, Hongyou Lu, Tom Lorber, Jens Dinkel, Jonas He, (2020), "Technologies and policies to decarbonize global industry: review and assessment of mitigation drivers through 2070", **Applied Energy**, Volume 266, 15 May 2020, 114848). <https://energyinnovation.org/wp-content/uploads/2020/04/Technologies-and-policies-to-decarbonize-global-industry-review-and-assessment-of-mitigation-drivers-through-2070.pdf>
  18. Chakravarty, D. and **Joyashree Roy** (2021). Solar Microgrids in Rural India: A Case Study of Household Benefits, Ecology, **Economy and Society—the INSEE Journal** 4 (2): 65-93, July 2021. <https://ecoinsee.org/journal/ojs/index.php/ees/article/view/140>
  19. Mahmud, Hasan, and **Joyashree Roy** (2021). "Barriers to Overcome in Accelerating Renewable Energy Penetration in Bangladesh" **Sustainability** 13, no. 14: 7694. <https://www.mdpi.com/2071-1050/13/14/7694>. <https://doi.org/10.3390/su13147694>
  20. **Roy Joyashree**, Satabdi Datta, PreetiKapuria, Indrila Guha, Rajarshi Banerji, Md. Giashuddin Miah, M. Rafiqul Islam, JanakaRatnasiri, P.B. Terney Pradeep Kumara, Chinthaka Samarawickrama Lokuhetti, and ShamenPrabhathVidanage (2021), Coastal ecosystems and changing economic activities: **Challenges for sustainability transition**. Elsevier, Amsterdam, NL. pp 425-441.
  21. Das Nandini, Shyamasree Dasgupta, **Joyashree Roy**, OlufLanghelle, Mohsen Assadi (2021), Emission mitigation and energy security trade-off: An analysis of natural gas as a transition fuel for the Indian power sector. **Energies**, 14, 3787, pp 1-17. <https://doi.org/10.3390/en14133787>
  22. Ghosh, N., Das, B., Das, N., Chatterjee, S., Debsarkar, A., Dutta, A., Chakrabarty, S., **Roy, J.** (2021). Particulate Matter and Adverse Respiratory Health Outcome: Exposure of Street Vendors in Kolkata city in India. **Pollution**, 7(4), 769-785. doi: 10.22059/poll.2021.321814.1059
  23. Ghosh Nabanita, Abhisek Roy, Devdyuti Bose, Nandini Das, Anupam Debsarkar, **Joyashree Roy**, (2021) "COVID-19 Lockdown: Lessons learnt using multiple air quality monitoring station data from Kolkata City in India", **Research Journal of Chemistry and Environment**. Accepted for publication on 03April, 2021.
  24. **Roy, J.**, Some, S., Das, N., & Pathak, M. (2021). Demand side climate change mitigation actions and SDGs: literature review with systematic evidence search. **Environmental Research Letters** 16 043003. DOI <https://doi.org/10.1088/1748-9326/abd81a> (Small Citation Joyashree Roy et al 2021 Environ. Res. Lett. 16 043003)
  25. **Roy, Joyashree**, Sheikh Tawhidul Islam and Indrajit Pal, Hasan Mahmud (2021), Implementation Framework for Sustainable Development: What Matters in the Context of Bangladesh, **International Energy Journal** 21 (2021) Special Issue 1A, PP 1 – 8. [https://drive.google.com/file/d/1xokUe\\_8aNY2QqLq9EZS6g0-crHH9fgFi/view](https://drive.google.com/file/d/1xokUe_8aNY2QqLq9EZS6g0-crHH9fgFi/view)
  26. **Roy, Joyashree**, Sheikh Tawhidul Islam and Indrajit Pal, (2021), White Paper: Top Ten Priorities in Implementation of Low Carbon Sustainable Energy Development and Adaptation Framework to Reduce Disaster Impact in the Context of Bangladesh, **International Energy Journal** 21 (2021) Special Issue 1A, PP 143-145.
  27. Erik Pihl, Eva Alfredsson, Magnus Bengtsson, Kathryn J. Bowen, Vanesa CastanBroto, Kuei Tien C hou, Helen Cleugh, Kristie Ebi, Clea M. Edwards, Eleanor Fisher, Pierre Friedlingstein, Alex Godoy-Faúndez, Mukesh Gupta, Alexandra R.Harrington, Katie Hayes, Bronwyn M. Hayward, Sophie R.Hebden, ThomasHickmann, Gustaf Hugelius, Tatiana Ilyina, Robert B. Ja

## Annual Report 2020-2021

- ckson, Trevor F. Keenan, Ria A. Lambino, Sebastian Leuzinger, Mikael Malmaeus, Robert I. McDonald, Celia McMichael, Clark A. Miller, Matteo Muratori, Nidhi Nagabhatla, Harini Nagendra, Cristian Passarello, Josep Penuelas, Julia Pongratz, Johan Rockström, Patricia Romero Lankao, **Joyashree Roy**, Adam A. Scaife, Peter Schlosser, Edward Schuur, Michelle Scobie, Steven C. Sherwood, Giles B. Sioen, Jakob Skovgaard, Edgardo A. Sobenes Obregon, Sebastian Sonntag, Joachim H. Spangenberg, Otto Spijkers, Leena Srivastava, Detlef B. Stammer, Pedro H. C. Torres, Merritt R. Turetsky, Anna M. Ukkola, Detlef P. van Vuuren, Christina Voigt, Chadia Wannous, Mark D. Zelinka (2021) 10 New Insights in Climate Science 2020 -a Horizon Scan, **Global Sustainability**. Vol 4. E5. DOI: 10.1017/sus.2021.2
28. Dasgupta, S; Das, N; **Roy, J** (2021) Index decomposition analysis of energy use in India, in Contemporary Issues in Sustainable Development, the case of India (ed) Tanika Chakraborty, Deep Mukherjee, Sarani Saha, Routledge, NY, pp126-145. <https://www.routledge.com/Contemporary-Issues-in-Sustainable-Development-The-Case-of-India/Chakraborty-Mukherjee-Saha/p/book/9781138227101>
29. S. Chatterjee, **B. Roy**. An approach to ensure joint illumination & communication performance of a forward error corrected indoor VLC system in presence of ambient light interference. 2020. **Journal of Optical Communications**, DOI: <https://doi.org/10.1515/joc-2019-0212>
30. S. Sahana, **B Roy**. Effect of Chromaticity of Surrounding Light Sources on Mesopic Adaptation Luminance; **Light & Engineering**; 2021; <https://doi.org/10.33383/2020-012>
31. B Gupta Bakshi, B Roy. Electrical model formulation for multicolor light-emitting diode modules and its application to design dimmable driver. International Journal of Circuit Theory and Applications. 2021.: <https://doi.org/10.1002/cta.2977>
32. S. Chatterjee, B. Roy. Design, development and practical realization of a VLC supportive indoor lighting system. 2020. Light and Engineering. <https://doi.org/10.33383/2019>
33. V. Gupta, B. Basak, K. Ghosh, B. Roy. 2020. Universal control algorithm for automatic current regulated LED driver. International Journal of Power Electronics (IJPELEC), Vol. 12, No. 2. DOI: 10.1504/ijpelec.2020.10029994
34. B Gupta Bakshi, B Roy. A design methodology for acoustic resonance-free, high-frequency, dimmable electronic ballast for high-pressure sodium-vapour lamps. 2020. Lighting Research & Technology. 2020; 52(4): 524–539. <https://doi.org/10.1177/1477153519875178>
35. Ray, A. and De, S.\* (2021): ‘A small scale distributed polygeneration with local renewable resources for a remote place of India: techno-economic optimization’, **International Journal of Ambient Energy (Taylor and Francis)**, 42(9), 985-998 (doi 10.1080/01430750.2019.1583129)
36. Pati, S. and De, S.\* (2021), ‘Model development and thermodynamic analysis of biomass co-gasification using Aspen plus®’, **Indian Chemical Engineer (Taylor & Francis)**, 63(2), 172-183 (<https://doi.org/10.1080/00194506.2021.1887770>).
37. Sahana, C., De, S. and Mondal, S. (2021): ‘Integration of CO<sub>2</sub> power and refrigeration cycles with a desalination unit to recover geothermal heat in an oilfield’, **Applied Thermal Engineering (Elsevier)**, 189, 116744 (<https://doi.org/10.1016/j.applthermaleng.2021.116744>).
38. Pati, S., De, S., Chowdhury, R. (2021): ‘Process modelling and thermodynamic performance optimization of mixed Indian lignocellulosic waste co-gasification’, **International Journal of Energy Research (Wiley)**, 45, 17175-17188. DOI: <https://doi.org/10.1002/er.605>
39. Kumar, G., Thakur, B., De, S.\* (2021): ‘Energy performance of typical large residential apartments in Kolkata: implementing new energy conservation building codes of India’, **Clean Technologies and Environmental Policy (Springer)**, 1251-1271, <https://doi.org/10.1007/s10098-020-02022-7>

40. Das, S., Ray, A., De, S.\* (2020): 'Optimum combination of renewable resources to meet local power demand in distributed generation: A case study for a remote place of India', **Energy (Elsevier)**, 209, 118473. <https://doi.org/10.1016/j.energy.2020.118473> (available online)
41. Mondal, S., De, S.\* (2020): 'Performance assessment of a low-grade heat driven dual ejector vapour compression refrigeration cycle', **Applied Thermal Engineering (Elsevier)**, 179, 115782. <https://doi.org/10.1016/j.applthermaleng.2020.115782>
42. Somehsaraei, H.N., Ghosh, S., Maity, S., Pramanik, P., De, S.\*, Assadi, M. (2020): 'Automated data filtering approach for ANN modeling of distributed energy systems: Exploring the application of machine learning', **Energies (MDPI)**, 13(14), 3750. <https://doi.org/10.3390/en13143750>.
43. Mondal, S., Datta, S., De, S.\* (2020): 'Auxiliary power through marine waste heat recovery using a CO<sub>2</sub>-organic cascading cycle', **Clean Technologies and Environmental Policy (Springer)**, 22(4), 893–906. DOI:10.1007/s10098-020-01831-0

**E. Research Articles Published in Edited Volumes during the year:**

1. Jana, K. and De, S.\* (2021): 'Efficient and low - carbon energy solution through polygeneration with biomass', in **Advances in Carbon Management Technologies (CRC Press)**, Editors: Subhas K. Sikdar and Frank Princiotta, Vol 2, pp. 208-226 (book doi: <https://doi.org/10.1201/9781003056157>).
2. Jana, K. and De, S.\* (2020): 'Overview of CCS: A Strategy of Meeting CO<sub>2</sub> Emission Targets', **Encyclopedia of Renewable and Sustainable Materials (Elsevier)**, Vol.3, pp. 628-639, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury (<https://doi.org/10.1016/B978-0-12-803581-8.11026-4>).
3. Ray, A and De, S.\* (2020): 'Renewable Electricity Generation: Effect on GHG Emission.' **Encyclopedia of Renewable and Sustainable Materials (Elsevier)**, Vol.3, pp. 728-735, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury. (<https://doi.org/10.1016/B978-0-12-803581-8.11015-X>).
4. Mondal, S. and De, S.\* (2020): 'Power and Other Energy Utilities from Low Grade Waste Heat – Novel Technologies to Reduce Carbon Footprint, **Encyclopedia of Renewable and Sustainable Materials (Elsevier)**, Vol.3, pp. 667-677, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury. (<https://doi.org/10.1016/B978-0-12-803581-8.11037-9>).
5. Jana K and De, S.\* (2020): 'Polygeneration as efficient and de-carbonized energy solution', **Encyclopedia of Renewable and Sustainable Materials (Elsevier)**, Vol.3, pp. 655-666, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury. (<https://doi.org/10.1016/B978-0-12-803581-8.11005-7>).
6. Ray A and De S.\* (2020): 'Hybrid Renewable Multigeneration: Low Carbon Sustainable Solution with Optimum Resource Utilization', **Encyclopedia of Renewable and Sustainable Materials (Elsevier)**, Vol.3, pp. 526-533, Editors Saleem Hashmi and Imtiaz Ahmed Choudhury. (<https://doi.org/10.1016/B978-0-12-803581-8.11036-7>).
7. Dibakar Chakraborty, Krishna Prosad Mondal, Sheikh Tawhidul Islam, and **Joyashree Roy** (2021) 2017 flash flood in Bangladesh: Lessons learnt in (ed) Pal et. al., Disaster Resilience and Sustainability, Adaptation for Sustainable Development. Elsevier, Amsterdam, NL. pp 591-610.
8. **Roy, J**, Das, N., Some, S. (2021). India must use SDG Framework to strengthen developmental diplomacy. In Malancha Chakraborty and Navdeep Suri, eds, A 2030 Vision for India's Economic Diplomacy (New Delhi: ORF and Global Policy Journal, 2021). Pp 190 - 203. <https://www.orfonline.org/research/a-2030-vision-for-indias-economic-diplomacy/>
9. **Roy, J.**, Das, N., Some, S., Mahmud, H. (2021). Fast growing developing countries: dilemma and way forward in a carbon constrained world. In Dasgupta, P. et al. (Eds). Sustainable Development Insights

## Annual Report 2020-2021

from India: Selected Essays in Honour of Ramprasad Sengupta (pp 23-41). Springer Singapore. doi: 10.1007/978-981-33-4830-1https://www.springerprofessional.de/en/fast-growing-developing-countries-dilemma-and-way-forward-in-a-c/18986204

### F. **Research Articles Published in Conference Proceedings during the year:**

1. V. Gupta, B. Basak and **B. Roy**, "A Fault-Detecting and Motion-Sensing Wireless Light Controller for LED Lighting System," 2020 **IEEE Calcutta Conference (CALCON)**, Kolkata, India, 2020, pp. 462-466, doi: 10.1109/CALCON49167.2020.9106427

### 5. **Professional Activities by the Faculty Members / Research Scholars during the year:**

#### C. **Seminar /Workshop/Conference /Symposium Organized:**

IDEAA VISION 2025 -Roadmap of Indian Zero Carbon Energy Pathways on 25th and 26th February, 2021

### 6. **Major Achievements during the year:**

- Professor Joyashree Roy contributing as Coordinating Lead Author at IPCC (AR6) Working Group III
- Dr. Nandini Das contributing as Chapter Scientist at IPCC (AR6) Working Group III

### 7. **Extension Activities of the Programme during the year:**

Graduate/undergraduate students from Jadavpur University and various parts of India as well as from other countries worked as interns and worked with researchers associated with various ongoing projects. Dr. Shreya Some, currently working as a Scientist in the Intergovernmental Panel on Climate Change, Sixth Assessment Cycle, Working Group III (IPCC WGIII-Mitigation) Technical Support Unit is attached as a Visiting Researcher of GCP.

## JADAVPUR UNIVERSITY PRESS (Publications)

Phone: 033-24572951

Director : Dr. Abhijit Gupta

E-mail: jadunivpress.com

jupress@jadavpuruniversity.in

Owing to the Covid-19 pandemic, the year under review has been somewhat different from usual. Due to the state of complete or semi-complete lockdown which was in force during 2021-22, the activities of the JUP were confined to its office in the Jadavpur University campus. Curiously, this has resulted in a period of unprecedented activity as far as new titles are concerned. While activities such as participation in book fairs, book launches, events etc. came to a complete standstill, the press was able to publish its highest number of titles in a calendar year. This is owed entirely to the enthusiasm, resilience, and energy of the JUP staff who have been attending office on a regular basis since the Amphan cyclone in May 2020, while observing all the official protocols regarding Covid-19. Thanks are also due to the administration of the university which extended every possible help in keeping the press up and running during this critical period.

An account of the press's beginnings, and its recent experiences following the pandemic and the cyclone, may be found in this article, published in *Scroll.in*, as part of its 'Publishing and Pandemic' series:

<https://scroll.in/article/977857/how-a-university-press-built-its-list-was-shut-down-by-the-pandemic-and-a-cyclone-and-fought-back>

## Annual Report 2020-2021

### BOOKS PUBLISHED IN THE CURRENT YEAR 2021

1. Takeshi Nakajima, *Biplobi Rashbehari Bosu o Japan*, trans. into Bengali by Kazuhiro Watanabe, ISBN: 978-93-83660-70-4, Price. 500/-
2. Graham Shaw, *Subaltern Squibs and Sentimental Rhymes: the Raj Reflected in Light Verse*, ISBN: 978-93-83660-58-2, Price. 1600/-
3. Kakuzo Okakura, *Chaiwaad*, translated into Hindi by Lav Kanoi, ISBN: 978-93-83660-65-0, Price. 200/-
4. *Dictionary of the Kurmali Language*, eds. Atanu Saha, Bornini Lahiri, Arup Majumder, Dripta Piplai, ISBN: 978-93-83660-64-3, Price. 150/-
5. Hansda Sowvendra Shekhar, *Adibasira nachbe na*, trans. into Bengali by Rita Ray, Damayanti Dasgupta, Sujit Kumar Mandal, Suchismita Ghosh, and Epsita Halder, ISBN: 978-93-83660-74-2, Price. 250/-
6. Haruki Murakami, *Hatita udhao*, trans. into Bengali by Abhijit Mukherjee, Anuradha Chatterjee, Reema Ray, and Subha Bose, ISBN: 978-93-83660-67-4, Price. 450/-
7. Yukio Mishima, *Swarnamandir*, trans. into Bengali by Abhijit Mukherjee, ISBN: 978-93-83660-66-7, Price. 350/-
8. *Czeslaw Miloszer kobita*, trans. into Bengali by Kamil Siedczynski, ISBN: 978-93-83660-76-6, Price. 250/-
9. Rajat Baisya, *Makers of Jadavpur: The Technological Perspective*, ISBN: 978-93-83660-75-9, Price. 1000/-
10. Haruki Murakami, *Nari bibarjito purushera*, trans. into Bengali by Abhijit Mukherjee and others, ISBN: 978-93-83660-82-7, Price. 450/-
11. Ashok Sircar and Swati Ghosh, *The Poet's School*, trans. into English by Sarbajaya Bhattacharya and Sujaan Mukherjee, ISBN: 978-93-83660-81-0, Price. 600/-
12. Sukanta Chaudhuri, *Things Reborn: Essays on the Renaissance*, ISBN: 978-93-83660-80-3, Price. 1000/-
13. Neel Mukherjee, *Onyoder jiban*, trans. into Bengali by Suchismita Ghosh, ISBN: 978-93-83660-85-8, Price. 500/-
14. Mia Couto, *Terra sonâmbula*, trans. Bengali by Rita Ray
15. Inês Pedrosa, *Nas tuas mãos*, trans. Bengali by Rita Ray

### FORTHCOMING TITLES IN 2022

1. *Famine Tales from India and Britain*, several hands
2. *Tagore Graphic Anthology*, several hands
3. *Disaster and Response on COVID-19: A Multidimensional Approach*, eds. Snehamanju Basu and Gupinath Bhandari
4. *Two Plays* by Aimé Césaire (*Jhanjha/ Congoy ekti ritu*), trans. into Bengali by Kanchana Mukhopadhyay and Rita Ray
5. Manindra Gupta, *Nuri bandor*, trans. Bengali by Arunava Sinha
6. *Gautam Bhadra'r prabandha sankalan*
7. *Reading Films with Shamik Bandyopadhyay*
8. Hansda Sowvendra Shekhar, *My Father's Garden*, translated into Bengali by Suchismita Ghosh
9. Jean-Paul Sartre, *Essaies*, 12 vols., translated into Bengali by Chandan Adhya, Rita Ray, Nirranjan Goswami, Subha Chakraborty Dasgupta
10. *Envisioning the Indian City*, ed. Supriya Chaudhuri
11. Michael Carritt, *A Mole in the Crown*, eds. Sajni Mukherjee and Sujaan Mukherjee
12. Dante Alighieri, *Suddhilok*, trans. into Bengali by Alpana Ghosh
13. Durba Chattoraj, *Roadscapes: The In-Between World of Post-Liberalisation India*
14. Kaushik Bhaumik, *The Emergence of the Bombay Film Industry 1913--36*
15. Deborah Anna Logan, *Indian Ladies' Magazine: A Reader*
16. Rituparno Ghosh, *Translating Rituparno Ghosh*, unpublished screenplays of Rituparno Ghosh trans. into English by Anjana Basu

## Annual Report 2020-2021

17. Maryse Condé, *Moi, Tituba, sorcière... noire de Salem*, translated into Bengali by Chayan Bandyopadhyay, series editor Subha Chakraborty Dasgupta
18. Rafael Confiante, *La panse du chacal*, translated into Bengali by Nilanjan Chakrabarti and Dipa Chakrabarti, series editor Subha Chakraborty Dasgupta

### GRANTS AWARDED

1. **L'Institut Français en Inde: Aimé Césaire:** The IFI has offered support from its Publication Support Programme PAP Tagore towards the rights, translation and production costs for the translation of Aimé Césaire's *Un saison au Congo et Une Tempête*
2. **L'Institut Français en Inde: Jean-Paul Sartre 12 vols.:** The IFI has offered support from its Publication Support Programme PAP Tagore towards the rights, translation and production costs for 12 volumes of Jean-Paul Sartre's *Essaies*
3. **Camões-Instituto da Cooperação e da Língua (Camões, I. P.) and Direção-Geral do Livro, dos Arquivos e das Bibliotecas (DGLAB)**  
The DGLAB and Camões I. P. awarded grants for the translation and publication of the following work(s): Inês Pedrosa, *Nas tuas mãos*; Mia Couto, *Terra sonâmbula*

### COLLABORATIONS

1. **With the University of Exeter (*Famine Tales from India and Britain*)**  
JUP will be publishing an anthology of traditional scrolls and graphic art representations of cultural histories of famine and death in collaboration with the University of Exeter and Jadavpur University.
2. **With British Library, London, and School of Cultural Texts and Records, Jadavpur University.**  
JUP, in collaboration with the 'Two Centuries of Indian Print' project at the British Library, London, and the School of Cultural Texts and Records, Jadavpur University, will reprint a series of rare Bengali titles.  
The first three titles in the series will be published in 2021.

### EVENTS AND HIGHLIGHTS

1. **Online participation in Frankfurt Buchmesse**  
JUP representatives attended the virtual sessions, b2b webinars and Masterclasses on the publishing trends at the Frankfurt Book Fair 2021
2. **Runner-up award in Publishing Next Awards 2020**  
The runner-up for **Printed Book of the Year (Indian Languages)** at the Publishing Next Industry Awards for 2020 has been awarded to *Irasindhur Jadukar*, published by JUP. The book is a Bengali translation by Sudeshna Datta Chaudhuri of Ursula le Guin's *A Wizard of Earthsea*.

### RIGHTS ACQUISITION

Over the last few years, JUP has acquired translation rights to some of the most well-known world writers for translation into Bengali, and English. Some of these works have already been published while others are in production. The authors/works whose rights have been acquired are as follows:

1. Jean-Paul Sartre, *Essaies* vols. 1-12, from Gallimard, France
2. Christa Wolf, *Der geteilte Himmel*, from Suhrkamp, Germany
3. Mia Couto, *Terra sonâmbula*, from Mertin Witt, Germany
4. Inês Pedrosa, *Nas tuas mãos*, from Amazon Publishing
5. Manindra Gupta, *Nuri bandor*, from the estate of the author
6. Hansda Sowvendra Sekhar, *My Father's Garden*, from Speaking Tiger
7. Deborah Anna Logan, *Indian Ladies' Magazine: A Reader*, from Rowman & Littlefield

### BACKLIST

1. Barnita Bachi, ed. *Urban Utopias: Memory, Rights, and Speculation*. ISBN 978-93-83660-72-8.
2. Ursula le Guin, *Irasindhur jadukar*, trans. Sudeshna Datta Chaudhuri. (translation of the *A Wizard of Earthsea*) ISBN 978-93-83660-49-0, Rs 250.



## Annual Report 2020-2021

3. Sukanta Chaudhuri trans., Koustabh Chakraborty illus. *Red Ant Black Ant* (translation of *Lal-Kalo* by Girindrashekar Basu). ISBN 978-93-83660-59-9, Rs 200.
4. *Fernando pessoar kobita*, trans. Rita Ray. ISBN 978-93-83660-60-5, Rs 120.
5. Kathrin Schmidt, *Nodi o debdud*, trans. Sulagna Mukhopadhyay. ISBN 978-93-83660-61-2, Rs 70.
6. Kanishka Sarkar, ed. *Bangali naarir odhikaar, Unnoyon o Kshomotayon*, ISBN 978-93-83660-62-9, Rs 300.
7. *Desiring India: Representations through British and French Eyes 1584-1857*, ed. Nirajan Goswami. ISBN 978-93-83660-50-6, Rs 495.
8. *Indian Drama in English: The Beginnings*, ed. Ananda Lal. ISBN 978-93-83660-52-0, Rs 450.
9. Amartya Sen, *Calcutta after Independence: A Personal Memoir*. ISBN 978-93-83660-53-7, Rs 30.
10. J. H Broomfield, *Elite Conflict in a Plural Society*. Fiftieth Anniversary Edition. With a new introduction by Sekhar Bandyopadhyay. ISBN 978-93-83660-45-2, Rs 650.
11. Humphry House, *I Spy with My Little Eye*. Eds. Sajni Mukherji and Sujaan Mukherjee. ISBN 978-93-83660-44-5, Rs 200.
12. Sukanta Chaudhuri, *Chandalika: Prakritir Abhisar*. ISBN 978-93-83660-43-8, Rs 50.
13. Hariprabha Takeda, *The Journey of a Bengali Woman to Japan and other essays*, trans. Somdatta Mandal. ISBN 978-93-83660-47-6, Rs 350.
14. Subrata Sinha, *Adhnikatar Kabyatattva and Sudhindranath Dutta*. ISBN 978-93-83660-42-1, Rs 400.
15. H. Dutta, *Lieut. Suresh Biswas: His Life and Adventures*. ISBN 978-93-83660-33-9, Rs 300.
16. INCOM 2018: Proceedings of the First International Conference on Mechanical Engineering. Eds. Achintya Mukhopadhyay, Prasanta Sahoo and Swanendu Sen. ISBN 978-93-83660-38-4. Print and CD. *Not for sale*.
17. Samir Saha, *Samaj, bijnan o Halden*. ISBN 978-93-83660-34-6, Rs 100.
18. Rui Zink, *Shesher sedin*. Translated by Rita Ray from the Portuguese and published with financial assistance from the Camoes-Instituto da Cooperacao e da Lingua, I.P. ISBN 978-93-83660-37-7, Rs 300.
19. *E-Learning and Higher Education in India and Italy: Research Study and Analysis*. Eds. Supriya Chaudhuri, Sritama Chaudhuri and Andrea Reggiani. ISBN 978-93-83660-36-0. *Not for sale*.
20. Dante Alighieri, *Norok (L'Inferno)*. Translated from the Italian into Bengali by Alpana Ghosh under the general editorship of Sukanta Chaudhuri, and third in the Italo-Bangla Anubad series.
21. Haruki Murakami, *Samudratate Kafka II* (海辺のカフカ *Umibe no Kafuka*). Second volume, translated from the Japanese into Bengali by Abhijit Mukherjee.
22. Rui Zink, *Ek dojon Rui Zink*, collection of short stories. Translated from the Portuguese into Bengali by Rita Ray.
23. Haruki Murakami, *Samudratate Kafka I* (海辺のカフカ *Umibe no Kafuka*). Translated from the Japanese into Bengali by Abhijit Mukherjee. ISBN: 978-93-83660-25-4. Bengali. 382 pages. 2016. Rs 300.
24. Sayantan Dasgupta and Kabita Lama, eds., *Call of the Hills: A Coursebook of Indian Nepali Literature in Translation*. ISBN 978-93-83660-06-3. English. 250 pages. 2016. Rs 250.
25. Sangeeta Dutta and Subhoranjan Dasgupta, eds., *Tagore: The World as His Nest*. ISBN: 978-93-83660-14-8. English. 222 pages. 2016. Rs. 650.
26. *Journal of the Moving Image* 13. ISSN: 2230-9160. English. Academic journal of the Department of Film Studies, Jadavpur University.
27. *Tamang Selo: A Coursebook of Indian Nepali Literature in Translation*. ISBN: 978-93-83660-05-6. Nepali/English. 201 pp. 2015. Rs 200.
28. Pulin Behari Das, *Astracharchaa: Pulin Behari das Rachanasamgraha*; eds. Deeptanil Ray and Nikhilesh Bhattacharya. ISBN: 978-93-83660-13-1. 516 pages. Rs 700. 2015.
29. Mohit Ray, *Five Thousand Mirrors: The Water Bodies of Kolkata*. ISBN: 978-81-926767-7-7. 324 pages. Rs 495. 2015.
30. P.B. Shelley, *Kaaler joyjatra*. trans. Malini Bhattacharya. A translation of P. B. Shelley's *The Triumph of Life*. ISBN: 978-93-83660-04-9. 95 pages. Rs 150. 2015.
31. Madhumita Chattopadhyay and Tirthanath Bandyopadhyay, eds., *Ethics: An Anthology*. ISBN: 978-81926767-9-1. 260 pages. Rs 450. 2015.

## Annual Report 2020-2021

32. Amiya Bandhyopadhyay, *Khanasmriti*. ISBN: 978-81-927525-8-7. 170 pages. Rs 150. 2014.
33. Tushar Kanti Sarkar, Shefali Maitra and Indrani Sanyal, eds., *Wittgenstein: jagat, bhasa o chintan*. ISBN 978-81-86954-96-6. Rs 350. 2013.
34. Madhabendranath Mitra, Amita Chatterjee and Prayas Sarkar, eds., *Manodarshan: sarirbad o tar bikalpa*. ISBN 978-81-86954-98-0. Rs 300. 2013.
35. Amita Chatterjee, ed., *Bharatiya dharmaniti*. ISBN 978-81-86954-99-7. Rs 350. 2013.
36. Robert Antoine and Hrishikesh Basu, trans., *Aeneid*. ISBN 978-81-86954-93-5. Rs 400. 2013.
37. Amlan Das Gupta, eds. and trans., *Henry Sargent's Aeneid of 1810*. ISBN 978-81-86954-92-8. Rs 200. 2013.
38. Ashutosh Roy, *Amar cheen probash*. With an introduction by Prof. Amit Bhattacharya. ISBN 978-81-86954-97-3. Rs 100. 2013.
39. Sukanya Dasgupta, ed. *Aspects of Modernity: American Women's Poetry*. ISBN 978-81-927525-9-4. Rs 550. 2014.
40. *Essays on Half-tone Photography* by Upendrakishore Raychowdhury. ISBN 978-81-927525-5-6. Rs 300. 2014.
41. Bidhusekhar Shastri Bhattacharya, *Rabidrasanglapkanika o onannyo rochona*. ISBN 81-86954-66-X. 210 pp. Rs 170. 2011.
42. Niccolo Machiavelli, *Rajpurush*, trans. Doyeeta Majumder, with an introduction by Swapan Chakravorty. A translation of Niccolo Machiavelli's *Il principe*, translated from the original Italian. ISBN 978-81-86854-76-7. 156 pp. Rs 270. 2012.
43. Leonardo da Vinci, *Shilpachinta*, trans. and ed. Sukanta Chaudhuri. A translation from Leonardo's writings and sketches on art. ISBN 978-81-86854-77-5. 87 pp. Rs 200. 2012.
44. Supriya Chaudhuri and Sukanta Chaudhuri, eds., *Petrarch: The Self and the World*. ISBN 978-81-86854-91-1. 252 pp. Rs 495. 2012. [Distributed by Orient Blackswan]
45. Madhuja Mukherjee, ed., *Aural Films Oral Cultures: Essays on Cinema from the Early Sound Era*. ISBN 978-81-86854-81-2. 216 pp. Rs 450. 2012 [Distributed by Orient Blackswan]
46. Gangadhar Kar Nyayacharya, *Tarkabhasha*, Vol. I; 398 pp.; ISBN 978-93-80336-67-1; Rs 450. 2012 [Distributed by Mahabodhi Society]
47. Sumitra Mukherjee and Sujata Roychowdhury, *Aspects of Interpersonal Communication (Self-Empowerment Series, general editor: Soumitra Basu)*. ISBN 978-81-86954-82-9. 133 pp. Rs 100. 2012.
48. Subhrangshu Aditya, Sahana Nag and Susmita Chatterjee, *Ragaragir paristhiti kibhabe saamalno jay* ('Nijer bikasher jonyo' granthamala, general editor: Soumitra Basu). ISBN 978-81-86954-83-6. 106 pp. Rs 100. 2012.
49. Sumitra Mukherjee and Sujata Roychowdhury, *Kathopakathan o taar nanan aangik* (Nijer bikasher jonyo' granthamala, general editor: Soumitra Basu). ISBN 978-81-86954-84-3. Rs 100. 2013.
50. Subhrangshu Aditya, Sahana Nag and Susmita Chatterjee, *Managing Anger-Provoking Situations* (Self-Empowerment Series, general editor: Soumitra Basu). ISBN 978-81-86954-85-0. Rs 100. 2013.

### DISTRIBUTION

**JUP books are available at the following outlets:**

- A. Kolkata:  
College Street: Baibhasik, Dey's, Dhyandindu, DM Library  
South Kolkata: Read Bengali Books; JUP office on JU Main Campus
- B. Bolpur: Boiwallah
- C. Goa: Dogears Bookshop
- D. New Delhi: May Day Bookstore
- E. Bangladesh: Batighar
- F. E-retail: Flipkart, Amazon.in
- G. E-editions: Google Play Books (select titles)
- H. Select JUP titles are distributed by Orient BlackSwan, Mahabodhi Society and Alphabet Books.

## Annual Report 2020-2021

### JU RADIO

Phone: 033-2457-2620

033-2414-6060

Converner: Dr. Imankalyan Lahiri

E-mail: radioju@gmail.com

The main objective of **JU Community Radio 90.8 MHz** during the COVID 19 crisis is essentially to integrate the community not only within its 10 kilometre radius of present broadcasting, but also the whole of West Bengal. Thus, during the crisis, the radio station initiated certain disaster management plans, procedures and processes both at the local and state level to ensure an effective response to this and future crisis. In the view of present lock down and to give the listeners of the Community the message of “*Stay at Home*” to prevent the possible spread of the novel coronavirus as per government regulations, Community Radio JU initiated **Digital platform** to reach the audience and listeners. The most important of which, the radio started airing programmes on **YouTube** on ways to reach those in distress because of the lockdown and observing the safety protocol to fight the virus. Programmes are being aired on **Facebook**, too. The **Community Radio JU** started to upload **Special Awareness Programmes on COVID 19** of half an hour duration. **The Six episodes of Special Programmes are already on JU Radio You Tube Channel.** The Special Programmes are in **Bengali** and is named **Coronar Birudye Korun Judhyo** (Fight against COVID 19). The station is planning to upload the programmes regularly on You Tube. The Programmes are of 30 minutes duration with the advises from Doctors, Administrators and community members.

**The You Tube Channel of Community Radio JU is available at:**

<https://www.youtube.com/channel/UCljoKfKwxRdqiezp-Os9dkA/videos>

**The Links of the Special Community Radio JU Awareness Programmes on COVID 19 till date are available at:**

<https://youtu.be/fel9ItCie5Q>

<https://youtu.be/WRgNFQghiJo>

<https://youtu.be/XeSXkG4yxm4>

<https://youtu.be/iEWnOf1Vv7Y>

<https://youtu.be/I9cEkZtNuTE>

<https://youtu.be/YRA-WjqgqVg>

The Community Radio JU has also initiated a **dedicated interactive Face Book Page** where **the awareness programmes on COVID 19** are getting regularly updated along with important circulars from State and Central Governments. Eminent personalities and members of the community are also appealing to the community to stay at home through this page. The page is also uploading music, songs, and recitations to give the audience and listeners a sense of relief during this lock down. Programmes for Children are also getting regularly updated. Nearly 200 issues regarding COVID 19 crisis have been already updated in the page. The Face Book Page is regularly updating information regarding the **Community Kitchens** in any part of West Bengal and also giving details of the activities of the Jadavpur University students who are also running community kitchens in the university and in other places outside Kolkata such as Bardhaman, Bandel and 24 South Parganas.

The Facebook Page of Community Radio 90.8 (MHz) is primarily focussing on:

- A. Awareness on COVID 19
- B. Circulars issued by different State and Central Government
- C. Messages from Celebrities requesting all to follow the Lock Down and with a request to stay at Home.
- D. Messages from Doctors on facts about COVID 19 and tips for staying Healthy.
- E. Information on Community kitchens and distribution of food and food stuff.
- F. Problems and appeals from villagers.
- G. Advises from Psychologists for students who are facing problems during the lock down.
- H. Information regarding online study materials and libraries.
- I. Songs, Recitation and other performances from eminent singers and performers for the audience and listeners.

## Annual Report 2020-2021

- J. Information regarding the availability of Masks and sanitizers.
- K. Appeals from Transgender and other members of the society who are in trouble.
- L. Probable solutions from the economists for the people facing different problems regarding the Bank Loans
- M. Messages and appeals from the Indians staying abroad.
- N. Programmes for Children.
- O. Information regarding the initiatives taken by Kolkata Police, West Bengal Police Government of India, and Government of West Bengal during this time of Lock down.

### **The dedicated page of Community Radio JU during COVID 19 Crisis**

is:<https://www.facebook.com/RadiojuCovid19/>

The Community Radio JU has also issued a dedicated **e-mail** where any member of the society can share their problem. The Radio Station on an average is getting 80-90 queries regarding their problems and the staff of the Radio Station is trying their best to sort out the problem by reaching directly to the officials cornered. The Station is using the vast network of Jadavpur University alumni to help the people in distress. The alumni includes, Police Officers, top government officials, members of different NGOs and journalists. The dedicated e-mail for the crisis management is: covid19radioju@gmail.com

The Recent News Paper articles on the Activities of Jadavpur University Community Radio Station is available at:

The Hindu:

<https://www.thehindu.com/news/national/other-states/coronavirus-jadavpur-university-students-alumni-form-network-to-help-needy/article31253545.ece>

The Telegraph:

<https://www.telegraphindia.com/calcutta/jadavpur-universitys-community-radio-goes-digital/cid/1760981>

Out Look:

<https://www.outlookindia.com/newscroll/coronavirus-community-radio-station-in-the-time-of-lockdown/1785074>

Press Trust of India

(Published in different digital and print media)

### **5. Collaborative Programmes:**

- COVID 19 Awareness Campaign with collaboration of the SMART BMGF.
- Assembly Elections Campaign with collaboration of the SMART-ECI.
- “SAHAJ PATH” ( Current Episode no. 135) for Street Children during COVID 19 Pandemic Situation with Collaboration of WBCPCR.
- “Bari Bose Mojar Kaj” (Current Episode no.115) for ICDS Children during COVID 19 Pandemic Situation, Initiated by Department of women & Child Development & Social Welfare with collaboration of UNICEF & Vikramshila Education Resource Society.
- “SISHU TARANGA” (Total episode no. 30) with collaboration of UNICEF.

## Annual Report 2020-2021

### NATIONAL SERVICE SCHEME (NSS)

Phone : 033-2457-2502

033-2414-6151

Coordinator : Dr. Anupam Debsarkar

E-mail : anupamju1972@gmail.com

#### 6. Major Achievements of the Centre during the year:

#### C. Awards received by Research Scholars/students:

Name of the Research Scholar/ Student	Name of the Award/ Honour	Awarding Institute	Place
Mr. Ujan Natik	National Service Scheme Award for the year 2018-2019 (Category-Best Volunteers)  Dated 24 September, 2020	Govt. of India (award given by President of India)	Virtual mode at Vigyan Bhawan, New Delhi and Regional Centers of National Information Center (Bhubaneswar),

#### D. Any Other Major Achievements:

1. NSS Programme Officers from Jadavpur University Viz. Dr. Lalit Lalitav Mohakud (Department of Education) and Dr. Debdas Mandal (Department of Sanskrit) were participated in the State Level Gender awareness training programme, dated 3rd and 4th September, 2020 at online platform.
2. NSS student volunteers from Jadavpur University viz. Mr. Subhadip Mandal (Bengali, PG-II), Mr. Sumanta Pramanik (Philosophy, PG-I), Miss Sagarika Shil (Philosophy, UG) were selected for East Zone Pre Republic day Parade Camp at Siksha 'O' Anusandhan University, ITER Campus-I, Jagmohan nagar, Bhubaneswar, Odisha from 22nd November to 1st December, 2020.
3. NSS student volunteer from Jadavpur University viz. Mr. Subhadip Mandal (Bengali, PG-II) was selected for Republic Day Parade Camp at Rajpath, Delhi from 1st January, 2021 to 31st January, 2021.
4. NSS Student volunteers from Jadavpur University viz. Mr. Uday Karmakar (B. Lib), Miss Mimi Mandal (Education, B, Ed.), Miss Tinni Mandal (Sociology), Miss Mampi Bera (History), Miss Ractima Baidya (Sanskrit), Mr. Sumanta Pramanik (Philosophy) and two Officials Mr. Arun Mahata (Programme Officer), Ms. Sanjita Sarkar (Official) were participated in the State Level National Integration Camp at Kalyani University, Kalyani, Nadia, West Bengal on 28<sup>th</sup> January, 2021.

#### 7. Extension Activities of the during the year:

#### B. Activities for the Society:

##### (i) Special Camps (2020-2021)

1. Emergency intervention including trauma care, initial counseling and data collection at Sundarban (Namkhana, Kakdwip, Gosaba), dated 11th to 17th June, 2020. No. of participants- 50 (Male- 26 Female- 24). Total beneficiaries- 250 (Male- 185 Female- 70).

##### (ii) Regular Activities (2020-2021)

1. COVID-19 General Awareness programme and quiz contest at online platform, dated 16 to 30 May, 2020. No. of participants -2500 (Male- 1600 Female-900).
2. Celebration of NSS day and the golden jubilee year of NSS at online platform, dated 24 September, 2020. No. of participants- 600 (Male- 400 Female- 200).
3. Mask & sanitizer with leaflets distribution programme at Jadavpur 8B Bus Stand, Jadavpur, dated 16 October, 2020. No. of participants - 08 (Male-08). Total beneficiaries- 100 (Male- 85 Female- 15).

## Annual Report 2020-2021

4. Cloth distribution programme at Sarta, Sabong, Paschim Medinipur, dated 22 October, 2020. No. of participants- 15 (Male- 10 Female- 05). Total beneficiaries 100 (Male- 65 Female- 35).
5. Gandhiji and his ideas: Decades of Innovation at online platform, dated 2 October, 2020. No. of participants- 250 (Male-160 Female- 90).
6. University level Pre-Republic Day selection camp at Jadavpur University Main Campus, Kolkata, dated 6 November, 2020. No. of participants - 21 (Male-12 Female- 09).
7. Sanitization programme for Covid-19 at Jadavpur University Main Campus, Kolkata, dated 9 November,2020. No. of participants- 15 (Male- 13 Female- 02).
8. Pulse polio immunization programme at Netaji Basti, Dhakuria, Kolkata, dated 22 November, 2020. No. of participants- 06 (Male- 03 Female- 03). Total beneficiaries-39 (Male-18 Female-21).
9. Celebration of National Youth Day at online platform, dated 12 January, 2021. No. of participants - 241 (Male- 142 Female- 99).
10. Tree plantation programme at Jadavpur University Main Campus, dated 20th January, 2021. No. of participants- 25 (Male- 17 Female- 08).
11. Observance of 125th Birth Anniversary of Netaji Subhash Chandra Bose at Jadavpur University Main Campus and Netaji Basti, Dhakuria, Kolkata, dated 23rd January,2021. No of participants - 10 (Male-08 Female- 02).
12. Food distribution programme at Jadavpur University Main Campus and Netaji Basti, Dhakuria, Kolkata, dated 24th January, 2021. No of participants -08 (Male- 05 Female-03). Total beneficiaries-105 (Male-55 Female-50).
13. Pulse polio immunization programme at Gocharan, Bidhadharpur, South 24 Parganas and Jadavpur, Kolkata, dated 31st January, 2021. No. of participants -12 (Male- 06 Female- 06), Total beneficiaries-43 (Male-23 Female-20).
14. Tree plantation programme at Jadavpur University and A.T. Chatterjee Basti, Dhakuria, Kolkata, dated 8th February, 2021. No of participants- 10 (Male- 08 Female- 02). Total tree planted-56.
15. Garden Installation programme at Jadavpur University Main Campus and A.T. Chatterjee Basti, Dhakuria, Kolkata, dated 23rd February, 2021. No of participants- 05 (Male- 04 Female-01).
16. Celebration of National Science Day at online platform, dated 28 February and 1st March, 2021. No of participants-150 (Male- 85 Female- 65).
17. Orientation programme with disaster management programme at online platform, dated 16th March,2021. No of participants- 34 (Male- 18 Female- 16).
18. Gender awareness training programme at online platform, dated 18 &19 March, 2021. No of participants- 11 (Male- 06 Female-05).
19. Observance of “World Water Day” at Jadavpur University Main Campus, Kolkata dated 22 March, 2021. No of participants- 10 (Male-08 Female-02).
20. Tree plantation programme at Jadavpur University Main Campus and A.T. Chatterjee Basti, Dhakuria, Kolkata, dated 22 March, 2021. No of participants- 08 (Male-05 Female-03). Total tree planted- 50.

## Annual Report 2020-2021

### REGIONAL CENTRE, NATIONAL AFFORESTATION & ECO-DEVELOPMENT BOARD

[Ministry of Environment, Forests & Climate Change, Govt. of India]

Phone : 033-2457-2324 & 033-2414-6979

Coordinator : Prof. Asis Mazumdar

E-mail : asis.mazumdar@jadavpuruniversity.in

#### 1. Vision and Mission of the Centre:

##### A. Vision:

Regional Centre (RC), National Afforestation & Eco-Development Board (NAEB) at Jadavpur University (JU), Kolkata is the eastern region nodal centre of NAEB, Ministry of Environment and Forest, Government of India. NAEB was set up in August 1992 for promoting afforestation, tree planting, ecological restoration and eco-development activities in the country, with special attention to the degraded forest areas, lands adjoining the Forest Areas, National Parks, Sanctuaries, other Protected Areas and as well as the Ecologically Fragile Areas. The Regional Centre, being located within the university could explore the knowledge base of the relevant Departments/ Schools/Centers to extend the outreach activity of the university in the Natural Resources Management sector.

##### B. Mission:

the Regional Centre of NAEB, at Jadavpur University, Kolkata has been working on various programmes under the guidelines of the NAEB within its territorial jurisdiction of Bihar, Jharkhand and Sikkim apart from West Bengal, with the broader objectives to facilitate the respective State Forest Departments in planning, execution and monitoring of their different Afforestation and Eco-development activities through its Plan Programmes. Later on in 1996 the Union Territory of Andaman & Nicobar Group of Islands has been included under the jurisdiction of this Regional Centre.

2. **Academic Activities:** No formal academic courses offered by the Centre.

#### 4. Research Activities:

##### A. Areas of Research Activities (Broad Areas)

1. Afforestation & Eco-development
2. Joint Forest Management
3. Forest Development Agency
4. Green India Mission
5. Small & Micro Forest Enterprise
6. Soil & Moisture Conservation
7. Indigenous Technologies
8. Capacity Building & Forest Conservation
9. Wasteland Development & Biodiversity Conservation
10. Soil Water Plant Relationship
11. Impact of Forested Watershed on Stream Flow and Water Quality
12. Watershed Management
13. Natural Resources Management
14. Clean Development Mechanism
15. Carbon Sequestration
16. REDD+
17. Floristic Inventorisation of MPCAs

##### B. Major Research Projects :

Title of the Project	Type (Departmental / Individual)	Name of the Principal Investigator	Funding Agency	Duration

## Annual Report 2020-2021

Study on Impact of Forest Patta Grant on Forests in the state of Jharkhand	Individual	Prof. (Dr.) Asis Mazumdar	Department of Forests, Environment & Climate Change Government of Jharkhand	2018-2020
Impact of Water Harvesting Structures created under CAMPA in the state of Jharkhand	Individual	Prof. (Dr.) Asis Mazumdar	Department of Forests, Environment & Climate Change Government of Jharkhand	2018-2020
Floristic inventorisatio n of Kankrajhore and Susunia MPCAs in West Bengal	Individual	Prof. (Dr.) Asis Mazumdar	Research Wing, Directorate of Forests, Govt. of West Bengal	ongoing
Research Support and knowledge partnership for development of marketable products from Minor Forest Produces (MFPs)”	Individual	Prof. (Dr.) Asis Mazumdar	Chhattisgarh State Minor Forest Produce Cooperative Federation Limited, Govt. of Chhattisgarh, Raipur.	2020-2021

### 6. Major Achievements of the Centre during the year:

#### D. Any Other Major Achievements:

1. The Regional Centre over the years has played significant role in Human Resources Development Activities by organizing over 189 workshops, 234 Training Programmes for thousands of participants of the State Forest Departments (West Bengal, Jharkhand, Bihar, Sikkim and Andaman & Nicobar Islands) as well as for the grass root level Community / Organizations.
2. Conducted more than **140** important **Research Studies** and 25 Success Stories/Case Studies covering a wide spectrum of pertinent issues on Natural Resources Management in Eastern Region.
3. Carried out the field monitoring and evaluation work for over **367 Centrally Sponsored Projects** (AOFFP, IAEDP, NTFP, IPV M, Sample Check etc.) in last 10 years throughout the Country.
4. Prepared **4 Status Reports** on Natural resources of three different states and also several Wasteland Maps.
5. Developed cost-effective Agro-forestry model for Red Lateritic Wastelands and Biological Reclamation for abandoned Collieries model.
6. Formulation of **Joint Forest Management Strategies and Norms for the Union Territory of Andaman & Nicobar Islands** under the sponsorship of Andaman & Nicobar Administration.
7. The Centre has evaluated **64 projects of National Afforestation Programme (NAP)** implemented through Forest Development Agencies (FDAs) in Arunachal Pradesh, Assam, Bihar, Orissa, Mizoram, Manipur, Sikkim, Uttar Pradesh and West Bengal.
8. Organized **seven “Refresher Course for Indian Forest Service (IFS) Officers”** in association with the School of Water Resources Engineering, Jadavpur University, which is unique among the Regional Centres of NAEB.
9. Developed the **“Strategic Plan and Financial Framework for Large-Scale Development Programme of Sundarban Biosphere Reserve”** funded by Sundarban Biosphere Reserve (under UNDP project).
10. Established the first **Small and Micro Forest Enterprise (SMFE)** in India under Dhalbhum FDA, East Singhbhum, Jharkhand and replicated the same in **Seraikela Forest Division in Jharkhand** and **Purulia Forest Division in West Bengal**.



## Annual Report 2020-2021

### REGIONAL-CUM-FACILITATION CENTRE (RCFC) (Eastern Region)

### NATIONAL MEDICINAL PLANTS BOARD (NMPB)

Ministry of AYUSH, Government of India

Phone : 033-2457-2324 & 033-2414-6186

E-mail : rfcnmpb@jadavpuruniversity.in

#### 1. Vision and Mission of the Centre:

##### A. Vision:

Promotion of Medicinal Plants through Conservation, Cultivation and Export.

##### B. Mission:

To provide a service window for growers of medicinal plants for supporting conservation, development, marketing, cultivation, value-addition, research and provide handholding support to stakeholders in terms of technology dissemination.

#### 3. Faculty Members in the Centre:

01 (Nodal Coordinator) + 01 (Regional Director) + 01 (Deputy Director) + 03 (Consultants) + 02 (Technical Assistants)

Number of Faculty Members			Number of Faculty Members with PhD
Professor	Associate Professor	Assistant Professor	
1	-	-	-

#### 4. Research Activities:

##### A. Areas of Research Activities: (Broad Areas)

Regional-cum-Facilitation Centre (RCFC), National Medicinal Plants Board (NMPB), Jadavpur University has been established as one of the seven such Centres in different regions (East, West, North-I, North-II, South, Central and North East) of the country under the Ministry of AYUSH, Government of India during 2017-18. This RCFC, NMPB for Eastern Region will act as one stop center for the growers, cultivators, researchers, traders and other stakeholders of medicinal plants. The centre caters the state of Bihar, Jharkhand, Odisha, West Bengal & Sikkim and would function in close co-ordination with State Medicinal Plants Board (SMPBs), the State implementing agency of the medicinal plants component of the AYUSH Mission. The RCFC, NMPB is to provide a service window for growers of medicinal plants for supporting conservation, development, marketing, cultivation and provide handholding support to stakeholders in terms of technology dissemination and also for establishing primary processing facilities etc. besides undertaking identified research relevant to the area concerned as and when assigned.

##### The major functions of the RCFC, NMPB are:

- To act as multifaceted facilitating arm of NMPB
- Development of Quality Planting Materials (QPM)
- Development of Agro technology of medicinal plants
- Setting up of primary processing, grading, marketing facilities
- To develop managerial and technical skill among the stakeholders
- Facilitation of sale of medicinal plants and produces
- To provide inputs on conservation, sustainable cultivation, technology upgradation, training & research
- Domestication of wild species in demand
- To function as a platform for bringing together the different stakeholders
- To organize periodical meetings, workshops, consultation of stakeholders

## Annual Report 2020-2021

- To review of the projects sanctioned by NMPB to various organizations
- To collect and maintain database of all concerned Sectors of the Medicinal Plants in the states and Integration of database of various States of the region concerned.
- To develop strategy for Information, Education and Communication (IEC) and its implementation.
- To document and disseminate success stories of activities supported by NMPB.

**5. Professional Activities by the Faculty Members / Research Scholars of the Centre during the year:**

**C. Seminar/Workshop/Conference/Symposium Organized:**

**(Name of the Teacher, Name of the Paper Presented, if any, Name of the Seminar, Place, Duration)**

Name of the Seminar/Workshop/Conference/Symposium	Name of the Coordinator(s) / Organizing Secretary/ equivalent	Title of the Proceedings, if published	Place	Date
Stakeholders' Meet on Medicinal plants	Prof. Asis Mazumdar	-	Ranchi, Jharkhand	18 March 2021
			Gangtok, Sikkim	25 March 2021
Farmers' Training Programme on Medicinal Plants Cultivation	Prof. Asis Mazumdar	-	Yuksom, West Sikkim	27 November 2020
			Siwan, Bihar	15 December, 2020
			Bakkhali, West Bengal	29 January, 2021
			Sonepur, Odisha	24 February, 2021
"International Conference cum Buyers Sellers Meet for Medicinal Plants Used in Lifestyle Products"			Jadavpur University, Kolkata	February 8-10, 2021

**F. Invited Lectures Delivered/Sessions Chaired:**

Name of the Teacher / RS	Type of Participation	Name of the Conference / Seminar	Place	Duration
Prof. Asis Mazumdar	Resource Person	Global Webinar on "A Road Map for Revival of Domestic Tourism for Rural Development in India"	Kolkata, West Bengal	8 January 2021

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

Name of the Teacher / RS	Name of the Conference / Seminar / Workshop / Course	Place	Duration
Mr. Sudipto Ghosh	Virtual conference 'Livelihood Improvement through Medicinal and Aromatic Plants – Status and Prospects in Odisha'.	Bhubaneswar, Odisha	18 July, 2020

## Annual Report 2020-2021

<b>Dr. Sanjay Bala</b>	‘International Conference on Plant Science in Past Genomics Era’	ICAR-NRRI, Cuttack, Odisha	14-16 March, 2021
<b>Dr. Sanjay Bala</b>	13 <sup>th</sup> Kalinga Herbal Fair	16 to 22 March, 2021	Bhubaneswar, Odisha
<b>Dr. Soumyajit Biswas</b>	‘Ayurveda Parv’	26-28 March	Bhubaneswar, Odisha

### 6. Major Achievements of the Centre during the year:

#### D. Any Other Major Achievements:

- Organised “International Conference cum Buyers Sellers Meet for Medicinal Plants Used in Lifestyle Products” during February 8 to 10, 2021. There were 1912 registered participants and nearly 100 foreign participation; along with 35 virtual stalls including stalls from foreign countries.
- A Regional Workshop cum Buyer Seller meet was conducted at Jadavpur University Campus. The programme was attended by 338 participants covering Bihar, Jharkhand, Odisha and West Bengal. Traders and Industries from all over India attended the Meet. Apart from the workshop 10 numbers of stalls were installed for product display and interaction with different stakeholders at the venue.
- RCFC-ER has organized two “State Level Buyer-Seller Interactive/Consultative Workshop on Medicinal Plants” in Bihar & Odisha.
- RCFC-ER has organized 13 Training Programmes on Cultivation, Value Addition and Marketing of Medicinal Plants in the state of Bihar, Jharkhand, Odisha & West Bengal.
- RCFC-ER provided training 1123 nos. of medicinal plants cultivators in the state of Bihar, Jharkhand, Odisha & West Bengal.
- More than Seven lakhs Quality Planting Materials (QPM) were raised in multiple locations by engaging various organizations in the state of Bihar, Jharkhand, Odisha, Sikkim & West Bengal & distributed through local farmers.
- Carried out the field monitoring and evaluation work for 7 NMPB funded projects in Odisha, West Bengal & Sikkim.
- RCFC-ER collected data on medicinal plants cultivation for 17599 nos. of farmers from Nadia & Murshidabad district along with GPS tagging of their cultivation lands
- RCFC-ER collected Schedule TA data of some major ASU Manufacturing units of Bihar
- RCFC-ER published Activities and Achievement booklet for 2019-20 of RCFC-ER, NMPB, JU
- RCFC-ER documented 4 success stories achievement in medicinal plants sector in Odisha, Bihar, West Bengal.
- RCFC-ER participated in National Level Arogya Fair during 22-25 August, 2019 at Mumbai & 7 Indian National Exhibition-cum-Fair-2019 at Metropolitan Dev. Authority (KMDA) Ground, Patuli, Kolkata from 25 – 29 September, 2019.
- Redesigned and republished the brochure of RCFC-ER
- Improved the modern Nursery at Jadavpur University campus & provided Training (1<sup>st</sup> Batch of 20 from Bihar & Jharkhand: 24-28 February. 2020 & 2<sup>nd</sup> Batch of 20 from Odisha & WB: 2<sup>nd</sup> to 6 March 2020) through “Development of QPM and Skilled Manpower for Medicinal Plants Propagation” under RUSA 2.0 (Rashtriya Uchchatar Shiksha Abhiyan) :
- RCFC-ER Developed herbal garden of 41 spp. For demonstration within the nursery compound
- Published Manual for Production of Quality Planting Materials (QPM) for Medicinal Plants
- The 1<sup>st</sup> and 2<sup>nd</sup> fortnight Market Price data of top 100 Medicinal and Aromatic Plants from 25 Major Markets of India (Kolkata, Siliguri and Berhampur Market) is being collected for “e-CHARAK”- e-Channel for Herbs, Aromatic, Raw material and Knowledge, a platform to enable information exchange between various stakeholders involved in the medicinal plants sector which has been jointly developed by the National Medicinal Plants Board (NMPB), Ministry of AYUSH, Government of India and Centre for Development of Advanced Computing (C-DAC).
- RCFC-ER assisted in 5 nos. of research identified concerned with the region viz., Identification of High Yielding Stevia Cultivars Suitable for Gangetic Alluvial Regions of West Bengal; Assessment

## Annual Report 2020-2021

of Active Principle of Medicinal Plants for Recommendation of Cultivation as Quality Plant Materials; Giloy: Quality Assessment of Bioactive compounds for selection of Elite Plant from wild Plant Genetic Resource for Recommendation of Cultivation; *Tinosporacordifolia*- evaluation of quality related Safety issues; Quality Planting Material Production of *Stevia rebaudiana* through Polyploidy Induction

- Created and strengthened linkage with medicinal plant stakeholders, especially in eastern region.

### **RURAL & CRYOGENIC TECHNOLOGIES**

[A Grant in aid Centre of Department of Science & Technology  
and Bio-technology Govt. of West Bengal]

Phone : 033-2414-6747/6735/6965

033-2457-2585

Director : Prof. Swapan Chandra.Sarkar

E.mail : rct.centre@jadavpuruniversity.in

1. **Number of Associated Faculty Member:** 06
2. **Centre for Rural & Cryogenic Technologies** (Former Advanced Centre of Cryogenic Research – Calcutta ) has the distinction of being born on 2nd November 1979 (the time when the Institute of Cryogenics, University of Southampton, UK was also born) as a R & D Institute of Cryogenics with initial GRANT from Commerce and Industries Dept. Govt. of W.B. to promote cryogenics research and education/ training in all fields of science and technology with Prof Akhyananda Bose ( the founder president of Indian Cryogenics Council) as its Founder Director. It is a grant in aid autonomous organization under Department of Science & Technology, Government of West Bengal since April 1996 and it also receives grant from Dept. of Higher Education (Social Education Branch) on scheme basis. The Centre is an affiliated unit of Jadavpur University and academically recognized for offering Ph.D. under Faculty for Interdisciplinary studies, Law & Management (FISLM).
3. **Area of Research & its Importance:**  
Promoting research in the field of cryogenic and allied science for its potential development in education & training towards spread of knowledge in the multi-dimensional fields for the improvement of human society. The work aims at solving the difficulties of society, planning of education and training to create trained manpower in cryogenic science& technology, cryopreservation including Rural technology and other relevant areas by utilizing knowledge of this front line discipline. The Centre is pioneer in India for promoting Cryogenic Science application towards improvement of socio economic condition of the country.Cryogenics,the interdisciplinary science &technology has become very vital to education research,national economy and national security. Its potential needs to be properly utilized at JU. It isalso essential to incorporate Cryogenics as a subject in the syllabus of all under graduate and postgraduate courses in Science and Engineering disciplines of JU

## Annual Report 2020-2021

### A. Research Activities:

- i) Cryogenics in production, maintenance, measurement, control and its utilization for scientific investigation.
- ii) Investigation of phenomena, techniques and concepts for sectors such as fertilizer, steel, petrochemicals, material science, gas purification, environmental science, agricultural chemistry, food science, biology, chemicals & pharmaceutical science and medical science including immunization programme, cryosurgery, infertility etc
- iii) Defense, atomic energy and space science.
- iv) Medical oxygen production, cold chain for vaccination and providing food security of the country in COVID-19 like situation.

### B. Academic and Research activities in Cryogenic/Rural & Allied Technologies during financial year: 2020-21

Different research programme conducted in the Institute during current year (2020-21) are summarized below

#### i) Ongoing External Funding Project:

##### **UK-India Project under GCRF (Global Challenges Research Fund)**

The network brings renowned researchers from multiple disciplines and world class institutions – coming together to conduct impactful research continued. This project has significant relevance in food supply chain as well as in vaccine storage in pandemic situation. The project is **Transforming food cold supply chain in India through space science & technology** – S C Sarkar from Centre is acting as Project Collaborator in which RAL-Oxford, Sheffield University, IIT-Madras, NIT Goa etc. are participating.

#### ii) ICMR- Project- Govt. of India:

Project title “Improvement of Human Semen Quality Utilizing Two Novel Innovations Sperm Vertical Velocity and Motility – Promoting Proteins”

Project Investigator (PI): Dr. G.C.Majumder, Emeritus Scientist, CRCT,  
Research Associate for the Project- Dr. Prasanta Ghosh

Successful completion of project is expected to establish the motility promoting efficacy of FMSF and MIP (Motility Initiating Protein) for sub-fertile or infertile human spermatozoa. Thus, this investigation has the translational potential not only for human infertility clinics but also for animal breeding centers.

#### iii) Out reach programme assigned by DST&BT to the Centre

**Three projects under this scheme are initiated by the Centre. These are:**

##### a) Development of small Cryogenic Container for preservation purpose:-

Small cryogenic container are required for transporting liquid nitrogen in interior places and carrying bull semen for all artificial insemination program. These are also used for storing liquid nitrogen for various low temperature research carried out in laboratories, The market is mostly flooded with imported Dewar (IBP, LINDE and earlier UNION CARBIDE) with a very few of country made. India lags far behind China and other advanced countries in cryogenic technologies. Therefore much effort should be given on indigenous development in this field which will be efficient and economical with serviceability.

Cryo Container development- CRCT in the process of redeveloping it stainless steel

## Annual Report 2020-2021

Cryo Container 3-5 litter container which could be very useful for Animal husbandry Department for carrying Liquid Nitrogen in the interior village.

### b) Development of a System for Prevention of Post-harvest spoilage of Sesame Seed

Farmers are facing crop damage and substantial post-harvest losses of Sesame(Till) seeds, as its harvesting time is April to Middle of June, which is the time for monsoon rain causes a great damage (fungal growth)to the ripe fruits (pods) as they are stacked in the seed growing fields itself. Farmers are facing the problem of crop damage in yield loss due to rain in the post-harvest period. To mitigate the problem, a unique solution has been found out by the Research & Development effort by CRCT. The innovative method namely cryogas enrichment method of ripening sesame within two days time against 10 –15 days time.

### c) Conceptualization of Cold Supply Chain for Preventing Post-harvest Losses of Agricultural Products and Prototype Cold Box Development

A cold chain is a temperature controlled supply chain with cold storage and distribution in which agricultural produce are preserved afresh and where shelflife is extended for a long period of time. **Cold Chain Management system is a network of refrigerators, cold stores, refrigerated trucks, freezers and cold boxes organised and maintained so that the perishable items are kept at the right temperature to remain fresh and intoxicated during their transportation, storage, and distribution from factory to the point of consumer** With the increasing food demand and changing lifestyle, the cold chain has become the focal point for the government and investors.

The Centre for Rural & Cryogenic Technologies intends to develop a prototype storage system /Freezer operated by liquid nitrogen directly or indirectly vapour with control of temperature /humidity and oxygen free environment with a complete eco-friendly mechanism. Theoretical and experimental study will be carried to test the efficiency of the system towards preservation of perishable agri produce/fruits for increasing shelf life

### 4. Ph.D. Programme of the Centre:

**A few students are being provided a small assistance and are being encouraged for enrolling for Ph.D.**

**Registered Ph.D. Student:** Ms Shrabani Ghosh has registered for Ph.D. (Sc.) Programmes in March, 2018 under Dr S.C Sarkar in the year 2018. Ph.D. (Science) Scholarship Rs. 8000.00/ month will be receiving from Jadavpur University under The scheme of Swami Vivekananda Merit Cum Means Scholarship and CRCT need not pay her fellowship.

### 5. Seminars/Symposia/Workshop:

#### CELEBRATION OF WORLD REFRIGERATION DAY

- A. The Centre observed the **WORLD REFRIGERATION DAY(26 June 2020 )** at its Jadavpur University Campus through some interaction meeting and a few Lectures on Cryogenics in relevance to Rural Technology
- B. Prof. (Dr.) S.C Sarkar attended the webinar on invitation from IIR-France. the webinar on Cryogenic Energy Storage for Renewable Refrigeration and Power Supply organized by CRYO HUB on behalf of **International Institute of Refrigeration (IIR) -France(only Inter Governmental organization in Europe)** to mark the World Refrigeration Day (26th June 2020)

## Annual Report 2020-2021

IIR conducted a month long events on various aspects of modern refrigeration /cryogenics technologies for the benefit of masses.

CryoHub is an European Union-funded project to develop and investigate the potential of large scale cryogenic energy storage at refrigerated warehouses and food factories.

The innovative CryoHub technology is based on storing renewable energy as a cryogenic liquid - which in the case of this project is liquid air. This cryogen is then boiled at very low temperatures to generate electricity for on-site use or feeding the power grid during peak demand periods. The cooling effect of boiling the cryogen is employed to refrigerate industrial facilities.

large cross section of the teachers, research /student communities and industries are benefitted by such workshop/meeting/lectures in this specialized field of science and technology which have immense scientific and societal value.

### C. INVITED PARTICIPATION

- i) S.C Sarkar participated in the virtual mode West Bengal State Science Congress on 28 February, 2021 and also attended the Dr. Prasanta Chandra Mahalanobis Memorial Lecture
- ii) On invitation from IIR-France, Prof. (Dr.) S.C Sarkar attended their webinar Organized by CRYO HUB on behalf of International Institute of Refrigeration (IIR) -France(only Inter Governmental organization in Europe)  
**The theme of the webinar:**  
Cryogenic Energy Storage for Renewable Refrigeration and Power Supply.
- iii) S C Sarkar also participated several project monitoring ZOOM meeting with overseas project partner in connection with UK-India project on cold supply chain for Agri food

### 6. Publication

- i) Halder S, Sarkar M, Dey S, **Ghosh P**, Bhunia SK, Bandyopadhyay D, Giri B.  
“Melatonin Ameliorates Heat Stress Induced Dysregulation of Testicular Function In Wistar Rat By Restoring Tissue Health, Hormone And Antioxidant Status And Modulating Heat Shock Protein Expression”, International Journal of Life science and Pharma Research Volume 10., No 5 (December) 2020, pp L31-43
- ii) Chitta Ranjan Santra and **S Ghosh** “A Mini Review on the Corona Various- A Universal Long Standing Problem: T-Cell Therapy Might Show Some Light in New Vaccine Development”, American Journal of Applied Bio-Technology Research (AJABTR), Vol: 1, Pg: 30-43, Yr: 2020.
- iii) S Das Chaudhury, **S Ghosh** and Gargi Sardar: “Cell Signalling (cell-cell communication) and entropy change of the cellular system”, American Journal of Applied Bio-Technology Research (AJABTR), Vol: 1, Pg: 1-6,, Yr: 2020

### 7. Other Academic Activities:

Academic Staff / Scientist of the centre acted as paper sector, Paper reviewer, expert member for various University / IITs

## Annual Report 2020-2021

### **SYLFF PROGRAMME**

[Jadavpur University Ryoichi Sasakawa Young Leaders Fellowship Fund]

Phone: 033-2457-2389/2344

Director: Prof. Shibashis Chatterjee

Dr. Tilottama Mukherjee (since 27.11.2020)

E-mail: tm236@rediffmail.com

In 2003-2004, Jadavpur University became the First Indian University among the 69 SYLFF (The **RYOICHI SASAKAWA YOUNG LEADERS FELLOWSHIP FUND**) Institutions across 44 countries to earn SYLFF status and receive an endowment of one million US dollars (US\$1,000,000) from the Nippon Foundation. The JU-SYLFF programme provides a unique opportunity for students in Social Sciences and Humanities as fellowships are awarded to postgraduate students whose studies focus on the broad theme: Tradition, Social Change and Sustainable Development and those which adopt a Holistic Approach, that is, any issue or problem relevant to contemporary Indian society. It provides a unique research opportunity to the postgraduate students of the MA, M. Phil. and Ph. D. levels and is one of the highly-valued scholarships in India.

In February 2021, certain amendments were made to the Memorandum of Understanding.

#### **JU-SYLFF Fellows:**

##### **MA Level:**

- 1) Shaberi Das  
Department of English
- 2) Manoswini Sarkar  
Department of International Relations

##### **Ph.D Level (work in progress):**

- 3) Lalrinawmi Colvom Lulam  
Department of Comparative Literature

#### **Activities of JU-SYLFF Fellows:**

##### **Lalrinawmi Colvom Lulam**

Ph.D Candidate

March 2020 – Preparations for JuSylff - LANS2020 was well underway; however, it was cancelled due to the Pandemic and impending lockdown.

April-May 2020 – With the rise in racial/communal assaults against students and workers of North East India, a forum called North East India-Justice and Peace was formed virtually with students and workers from the region in the rest of India to deal with issues of racial violence, discrimination, and essential needs. The forum's work continues and addresses various issues through praxis, social action, and academic engagement.

May 2020 – In May 2020, former JU-SYLFF Fellow Sudeshna Dutta initiated a drive to assist those most severely impacted by the lockdown in and around her locality by ensuring they received essential provisions for the next three months. Lalrinawmitook part in raising funds from her community for the supplies and provisions. When the cyclone Amphaan hit coastal East India and West Bengal, she joined a student initiative from her Department to raise funds for students' families in the Sunderbans by tapping into the same community networks in North East India.

June 2020 – Participated in a multimedia project developed by filmmakers Roohi Dixit and Ziba Bhagwagar to document people's stories from the lockdown.

July 2020 – Got involved with a book project spearheaded by Adivaani Publishing to write a chapter for a volume on the various expressions of womanhood by women of Indigenous communities in India.

January 2021-

12 January - Critical Conversations - "On Decoloniality" With Walter Mignolo, a public online lecture organised by The New Polis



## Annual Report 2020-2021

15 January - Online consultation on the draft policy study on Indigenous Guardianship in India, by Professor Virginius Xaxa

February 2021 –

9 -10 February - International Online Conference on Canadian Studies entitled “Global Education and the Humanities in the time of Covid 19: Challenges and Perspectives beyond Borders” that would be organised by the Centre for Canadian Studies at Jadavpur University

March 2021 –

12 March - Tribal Diversity and Indigenous People

Online Seminar by Centre for Social Justice and Governance

TISS, Mumbai

### **Shaberi Das**

Title of Sylff MA thesis

‘Migration and Women’s Empowerment in the Indian Sundarbans Delta: Analysing the Oral Narratives of Women Migrants and Women Household Heads’.

Date of submission: January, 2021

Department: English

Article published:

Das, Shaberi & Sugata Hazra, ‘Trapped or resettled: coastal communities in the Sundarbans Delta, India.’ *Forced Migration Review (Climate crisis and local communities)* no. 64. June 2020. <https://www.fmreview.org/issue64>.

Project experience:

Research Assistant; ‘Environmental Linkages to Population Health and Wellbeing in Coastal Areas in the Bay of Bengal’ funded by the Interdisciplinary Global Development Centre (IGDC), York University, and co-led by York University, UK, Stockholm Environment Institute, Bangkok, Jadavpur University, India and International Centre for Diarrhoeal Disease Research, Bangladesh (March 2021 - ongoing)

Research Assistant; ‘Scoping Pathways to Health System Resilience in the Sundarbans Delta: Redressing Climate Change Vulnerability to Population Health in South Asia (PreSuRV)’ led by University of York and Jadavpur University (April - August 2020)

### **Manoswini Sarkar**

Title of Sylff MA thesis

‘Role of MGNREGA in empowering women: Issues and Challenges faced in Jharkhand’.

Date of submission: February 2020

Department: International Relations

### **Shounak Set**

Paper titled, ‘Exploring Nuclear Transitions: In Quest of a Framework’, Voices from the Sylff Community, July 2020.

Received Sylff fellowship in 2013.

SRA2019-1

FR: King's College London (UK)

### **Sujaan Mukherjee**

Received Sylff Fellowship in 2016-18.

SRA2017-02

Submitted his PhD thesis in 2021.

Thesis title: ‘The City as Colonial Mnemonic: Memorials, Monuments, and Histories in Kolkata’s Urban Spaces, 1848-1921’.

## Annual Report 2020-2021

Supervisor: Professor Abhijit Gupta

Department: English

### **Sreerupa Sengupta**

Paper titled, 'Community and Risk Communication: Experience of COVID-19 Communication in India', May 2021.

Received fellowship: Jadavpur University (Ph.D), 2008-2010

SRA: 2009

Research area: Gender and Development

Current affiliation:

Assistant Professor, Healthcare Management,

Member, Centre for Social Sensitivity and Action

Goa Institute of Management, Goa.

[https://www.sylff.org/news\\_voices/29095/](https://www.sylff.org/news_voices/29095/)

## UGC-HUMAN RESOURCE DEVELOPMENT CENTRE

Phone: 033-2457-2103 (Main Campus)

Director: Prof. Rajat Acharyya

E-mail: [dir.hrdc@jadavpuruniversity.in](mailto:dir.hrdc@jadavpuruniversity.in)

### **1. Vision and Mission of the Special Programme:**

#### **A. Vision:**

UGC-HRDC Jadavpur University has been working since 2000 and already conducted around 500 programmes. It reached to more than 50000 faculty members and librarians of different colleges and universities across the country. Thousands of eminent teachers, scholars, professionals from the country and abroad joined this HRDC as resource persons. It has prepared a good amount of enriched e-resource material of its own. Being a part of Jadavpur University with glorious heritage of more than 50 years, HRDC, JU always keeps in mind the accountability towards the participants not only from the educational and pedagogical stand point but from the perspectives of values and ethics also. Therefore it has endeavored to maintain absolutely transparent selection procedure. After and during the pandemic the whole education moves on to online and blended mode of teaching learning. HRDC, JU has successfully acquainted with the new mode. Our mission is in one hand to sustain the quality it achieved and improve constantly on the basis of feedback of the stakeholders and need of the time on the other.

#### **B. Mission:**

- Emphasis on value education and Outreach programme
- Emphasis on participatory teaching learning
- ICT based- teaching learning process
- Production of e-resources and online training materials in collaboration with National Resource Centers
- Organise courses in blended and intensified mission mode
- Collaboration with other Academic institution and NGOs
- Publication of multidisciplinary Journal

## Annual Report 2020-2021

### 3. Faculty Members :

Number of Faculty Members			Number of Faculty Members with Ph.D
Professor	Associate Professor	Assistant Professor	
1		1	2

### 4. Research Activities:

A. **Areas of Research Activities (Broad Areas):** Economics, Education, Theatre

### D. Research Articles Published in Journals during the year (International/National Peer-reviewed journals)

(Name of authors, Title of the article, Name of the Journal, Volume No., Page No/Article No., Year of publication)

Bhattacharya, N. 2021. Altruism vs. Selfishness: A new interpretation of Tagore's Raktakarabi (Red Oleander). IOSR Journal of Humanities and Social Science 26(3):48-57. DOI: 10.9790/0837-2603024857.

Bhattacharya, N. 2020. Post Corona world: Who will win. International Journal of Sociology and Political Science 2(1): 01-03.

Bhattacharya, N. 2020. Carlos Celdrán: Cuba to Kolkata. Theatre Street Journal; 4(1):125-130.

### 5. Professional Activities by the Faculty Members / Research Scholars of this Special Programme during the year:

#### B. Books/Monographs Edited :

Name of the Editor(s)	Title of the Book/Monograph	Name of the Publisher	ISSN/ISBN No.	Year
Anindya Jyoti Majumdar, Shibashis Chatterjee	Peace and Conflict Studies Perspectives from South Asia	Routledge India	ISBN 9780367540401	2020

**N.B.** Contemporary Issues in Social Science Research is a series dedicated to the advancement of academic research and practice on emerging 21st century social and cultural themes. It explores fresh perspectives on a legion of interdisciplinary social science themes connecting subject areas that have hitherto been unexplored, underdeveloped or overlooked. This series aims to provide scholars, researchers and students a ready reference for the new and developing in social science academia which has come into the fore as focal points of debate and discussion today.

A Contract has been signed between Routledge India (Taylor & Francis) and the UGC-HRDC, JU, in publishing a Book Series entitled Contemporary Issues in Social Science Research, with Rajat Acharyya (Director) and Nandan Bhattacharya (Assistant Director) as Series Editors.

As per the agreement on Book Series, HRDC-JU and Routledge India will publish six (6) volumes in four years.

**Royalty: Two volumes published so far have got the royalty of 116711.38 INR**

**The Volumes/Titles of the proposed Book Series and its updated status is given below:**

Volume/Title	Volume Editor	Based on Lectures delivered at	Proposal Vetting by Routledge	Manuscript Status	Proposed Date of Manuscript Submission
Research Methodology	Rajat Acharyya &	STC on Research		Published	

**Annual Report 2020-2021**

for Social Sciences	Nandan Bhattacharya	Methodology (2015-16, 2016-17, 2017-18)			
Peace and Conflict Studies: A Reader	Shibashis Chatterjee & Anindya Jyoti Majumdar	RC on Peace and Conflict (2017-18)	Published		
History and Philosophy of Science	Nandan Bhattacharya	OP in last 5 academic sessions	In press		
Thinking through Gender	TBA	STC on Gender Sensitization (2017-18, 2018-19)	Proposal submitted	Sample chapters Submitted for review	
Disaster Management	TBA	RC on Disaster Management in 2017-18, 2018-19	Proposal not yet submitted		

**D. Refresher Courses Organized: 5**  
(Name of the Teachers, Title of the Course, if any, Duration ,Place)

Title of the Course	Name of the Coordinator(s)	Place	Date
Protean Wor(l)ds: Literary and Cultural Metamorphosis (Subject: English)	Prof. Sonia Sahoo Dr. Saswati Halder	Online	1 – 15 March, 2021
Exploring the Urban: In Time and Space (Subject: History)	Dr. Sudeshna Banerjee	Online	1–15 March, 2021
Chemical Sciences: From Concepts to Applications (Subject: Chemistry)	Prof. Sanjay Bhar Dr. Arunabha Thakur	Online	6 – 20 January, 2021
Literary Studies and the Question of Interdisciplinarity (Eligible disciplines – Arts and Humanities)	Prof. Kunal Chattopadhyay	Online	22 February – 6 March 2021
Data Science and its Applications (Computer Science & Engineering)	Dr. Chintan Kumar Mandal, Dr. Dipankar Das	Online	22February -6 March, 2021

**E. Orientation Courses/ Refresher Courses Attended: 3**

Name of the Teacher	Title of the Course	Place	Date
<b>Dr. Muktipada Sinha</b> <b>Dr. Nandan Bhattacharya</b>	FIP 1	Online	21 December, 2020 – 28 January, 2021
<b>Dr. Muktipada Sinha</b> <b>Dr. Nandan Bhattacharya</b>	FIP 2	Online	1 February – 8 March, 2021
<b>Dr. Muktipada Sinha</b> <b>Dr. Nandan Bhattacharya</b>	FIP 3	Online	22 February – 27 March, 2021

**Annual Report 2020-2021**

**F. Invited Lectures Delivered/Sessions Chaired:**

<b>Name of the Teacher / RS</b>	<b>Type of Participation</b>	<b>Name of the Conference / Seminar</b>	<b>Place</b>	<b>Duration</b>
<b>Nandan Bhattacharya</b>	(Invited Speaker) Life Science in Life: Medium Theatre. <a href="https://meet.google.com/fva-jfmi-zop">https://meet.google.com/fva-jfmi-zop</a>	Webinar organized by JBNSTS & Vigyan Prasar.	Online	12 February, 2021, during 3-4:30 pm.
<b>Nandan Bhattacharya</b>	(Invited Speaker) Education and Technology: One Policy, Two Citizens.	International Webinar on Education and Technology: Some emerging organized by Department of Philosophy, West Bengal State University on Ethical Issues	Online	2020

**H. Any Other Seminar/Workshop/Conference/Symposium/Course Attended:**

<b>Name of the Teacher / RS</b>	<b>Name of the Conference / Seminar / Workshop / Course</b>	<b>Place</b>	<b>Duration</b>
Dr. Subhrangsu Aditya CCSSS, Jadavpur University Smt. Sahana Nag, CCSSS, Jadavpur University	HRDC, JU National Webinar on 'Positive Mental Health in the Context of COVID-19'	Online	13.11.2020
Dr. Kajal Krishna Banik MBBS, DPH, MAE, Public Health Specialist and Epidemiologist, Editor, Journal of the Association for Prevention and Control of Rabies in India (APCRI), Hony. Editor, Journal of Indian Medical Association (JIMA)	HRDC, JU National Webinar on 'Pandemic: How to Cope up with'	Online	20.11.2020
Prof. Suranjan Das, Hon'ble Vice Chancellor, Jadavpur University and Prof. Basab Chowdhury, Hon'ble Vice Chancellor, WBSU	HRDC, JU National Webinar on Digital Education: Challenge and Solution	Online	27.01.2021
FCA G. K. Pattanayak, FO, Jadavpur University	HRDC, JU National Webinar on Financial rules and processes in Higher Education institutes: Changed scenario in 2020	Online	04.02.2021

**Annual Report 2020-2021**

**STUDENT PROFILE**

## Annual Report 2020-2021

### JADAVPUR UNIVERSITY STUDENT PROFILE

#### TOTAL STUDENT OF THE UNIVERSITY 2020-21 (CATEGORY-WISE)

FACULTY	Total no. of students (Category wise)														Minority*						Foreign*		Other State*				
	Total Student	General		S/C		S/T		OBC-A		OBC-B		Sports/ QIP		PD		TOTAL		Muslims		Christians		Others		M	F	M	F
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F						
<b>FACULTY OF ARTS</b>	<b>4573</b>	0946	1565	0509	0564	0099	0107	0180	0153	0161	0187	0006	0015	0058	0023	<b>1959</b>	<b>2614</b>	0157	0141	0000	0002	0003	0018	0004	0009	0045	0068
<b>FACULTY OF ENGG. &amp; TECH.</b>	<b>5928</b>	2920	459	1065	182	221	36	479	35	403	42	19	2	60	5	<b>5167</b>	<b>761</b>	240	14	0	0	1	0	19	8	995	139
<b>FACULTY OF ISLAM</b>	<b>700</b>	0268	0179	0087	0038	0006	0007	0040	0013	0043	0015	0001	0000	0002	0001	<b>0447</b>	<b>0253</b>	0027	0007	0000	0000	0000	0000	0002	0000	0175	0058
<b>FACULTY OF SCIENCE</b>	<b>1695</b>	0596	0338	0268	0126	0028	0020	0102	0039	0119	0041	0008	0005	0004	0001	<b>1125</b>	<b>0570</b>	0098	0036	0000	0002	0000	0001	0004	0004	0032	0015
<b>TOTAL</b>	<b>12896</b>	<b>4730</b>	<b>2541</b>	<b>1929</b>	<b>910</b>	<b>354</b>	<b>170</b>	<b>801</b>	<b>240</b>	<b>726</b>	<b>285</b>	<b>34</b>	<b>22</b>	<b>124</b>	<b>30</b>	<b>8698</b>	<b>4198</b>	<b>522</b>	<b>198</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>19</b>	<b>29</b>	<b>21</b>	<b>1247</b>	<b>280</b>

\* NOTE :- The figures appearing in Minority, Foreign and Other State are already included in the total column.

\* NOTE:- No Third Gender has been admitted in the session 2020-21

## Annual Report 2020-2021

### JADAVPUR UNIVERSITY FACULTY OF ARTS Session:2020-21

ARTS	Courses	Total Student	Total no. of students (Category wise)																									
			General		S/C		S/T		OBC-A		OBC-B		Sports/QIP		PD		TOTAL		Muslims		Minority* Christians		Others		Foreign*		Other State*	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Bengali	UG	203	37	68	16	27	3	5	3	17	8	10	0	4	4	1	71	132	4	16	0	0	0	0	0	0	2	1
Bengali	PG	144	18	50	19	25	3	2	3	8	5	5	0	0	6	0	54	90	3	6	0	0	0	2	0	0	0	0
Bengali	M.Phil	37	9	10	4	4	1	1	2	2	2	0	0	0	1	1	19	18	0	0	0	0	0	0	0	0	0	0
Bengali	PG (EVE.)	132	29	43	15	16	2	3	7	4	5	5	0	0	2	1	60	72	1	5	0	0	0	0	0	0	0	0
Comparative Literature	UG	203	40	99	19	23	3	0	2	4	6	6	1	0	0	0	71	132	2	5	0	0	0	0	0	0	0	2
Comparative Literature	PG	127	29	59	12	11	0	3	4	1	3	4	0	0	1	0	49	78	4	1	0	0	0	0	0	0	4	4
Comparative Literature	M.Phil	39	5	15	3	7	0	2	1	2	0	2	0	0	0	2	9	30	0	0	0	0	0	0	0	1	1	
Economics	UG	250	59	103	19	31	4	3	7	2	12	9	0	0	0	1	101	149	7	2	0	0	0	1	0	1	2	9
Economics	PG	139	39	39	9	25	5	4	3	2	3	10	0	0	0	0	59	80	3	0	0	0	0	2	0	0	1	3
Economics	M.Phil	8	0	0	3	0	0	1	1	1	1	1	0	0	0	0	5	3	1	1	0	0	0	0	0	0	0	0
English	UG	221	29	83	17	33	4	7	7	13	9	11	1	2	4	1	71	150	6	17	0	1	0	2	1	1	4	3
English	PG	143	20	66	7	20	5	5	2	6	5	3	0	0	3	1	42	101	2	5	0	0	0	0	0	0	1	4
English	M.Phil	40	7	14	3	6	2	0	2	2	2	0	0	0	2	0	18	22	1	1	0	0	0	0	0	2	1	1
Philosophy	UG	221	47	79	19	23	6	4	10	10	7	12	1	2	0	1	90	131	12	12	0	0	0	0	0	0	3	5
Philosophy	PG	152	31	47	21	20	4	4	11	2	5	6	0	0	1	0	73	79	9	3	0	0	0	0	0	2	0	3
Philosophy	M.Phil	37	6	12	2	6	1	0	2	2	2	2	0	0	2	0	15	22	0	2	0	0	0	0	0	0	0	1
Sanskrit	UG	171	24	73	14	39	0	4	1	2	5	8	0	1	0	0	44	127	1	4	0	0	0	1	1	0	0	0
Sanskrit	PG	100	15	21	19	20	2	3	3	3	3	8	0	0	2	1	44	56	3	1	0	0	0	0	0	0	0	0
Sanskrit	M.Phil	36	9	6	5	4	1	1	3	1	2	2	0	0	2	0	22	14	1	0	0	0	0	0	0	0	0	0
Sanskrit	PG	131	32	40	25	12	1	0	4	1	7	8	0	0	1	0	70	61	0	0	0	0	0	0	0	0	0	0





## Annual Report 2020-2021

- NOTE :- The figures appearing in Minority, Foreign and Other State are already included in the total column.
- NOTE:- No Third Gender has been admitted in the session 2020-21

**JADAVPUR UNIVERSITY  
FACULTY OF ENGG. & TECH.  
Session:2020-21**

ENGG. & TECH.	Courses	Total no. of students (Category wise)																Minority*						Foreign*		Other State*			
		Total Student	General		S/C		S/T		OBC-A		OBC-B		Sports/ QIP		PD		TOTAL		Muslims		Christians		Others		M	F	M	F	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F									
Architecture	UG	162	45	47	23	16	1	3	6	7	8	4	0	0	2	0	85	77	4	3	0	0	0	0	1	3	10	8	
Architecture	PG	16	8	6	1	0	0	0	1	0	0	0	0	0	0	0	10	6	0	0	0	0	0	0	0	0	4	4	
Chemical Engg.	UG	443	208	22	79	19	23	5	39	4	31	5	1	1	5	1	386	57	15	4	0	0	0	0	0	1	45	4	
Chemical Engg.	PG	19	10	3	4	1	0	0	1	0	0	0	0	0	0	0	15	4	0	0	0	0	0	0	0	0	12	2	
Bioprocess Engg.	PG	15	6	6	0	0	0	0	0	0	2	1	0	0	0	0	8	7	0	0	0	0	0	0	0	0	2	5	
Civil Engineering	UG	562	279	27	103	17	22	7	59	2	34	3	1	1	7	0	505	57	18	0	0	0	0	0	2	0	95	1	
Civil Engineering	PG	63	37	2	11	0	3	0	5	0	4	0	0	0	1	0	61	2	0	0	0	0	0	0	0	0	59	1	
Civil Engineering	UG (Eve.)	192	81	21	41	7	6	0	10	5	18	2	0	0	1	0	157	35	0	0	0	0	0	0	1	0	1	0	
Computer Sc.& Engg.	UG	316	154	15	64	3	15	4	30	0	22	1	4	0	3	1	292	24	9	0	0	0	0	0	1	0	21	1	

### Annual Report 2020-2021

Computer Sc. & Engg.	PG	<b>79</b>	40	8	11	4	1	0	3	1	9	1	0	0	1	0	<b>65</b>	<b>14</b>	4	0	0	0	1	0	3	0	36	6
Computer Sc. & Engg. (MCA)	PG	<b>140</b>	60	21	27	4	2	0	10	1	11	3	0	0	0	1	<b>110</b>	<b>30</b>	10	0	0	0	0	0	0	0	9	4
Computer Sc. & Engg. (M.Tech)	PG	<b>96</b>	45	21	13	6	1	0	4	0	3	2	0	0	1	0	<b>67</b>	<b>29</b>	4	0	0	0	0	0	1	0	43	22
Construction Engg.	UG	<b>0104</b>	0054	0001	0019	0005	0004	0001	0011	0000	0008	0001	0000	0000	0000	0000	<b>0096</b>	<b>0008</b>	0007	0000	0000	0000	0000	0000	0000	0000	0008	0000
Construction Engg.	PG	<b>0046</b>	0025	0005	0006	0001	0001	0000	0004	0001	0001	0002	0000	0000	0000	0000	<b>0037</b>	<b>0009</b>	0001	0001	0000	0000	0000	0000	0000	0000	0034	0009
Electrical Engineering	UG	<b>550</b>	265	29	112	12	31	2	48	3	35	1	2	0	10	0	<b>503</b>	<b>47</b>	35	2	0	0	0	0	0	0	53	4
Electrical Engineering	PG	<b>62</b>	35	0	12	1	2	0	6	0	5	0	1	0	0	0	<b>61</b>	<b>1</b>	5	0	0	0	0	0	1	0	37	0
Electrical Engg. (Control System)	PG	<b>36</b>	21	1	7	1	0	1	3	0	2	0	0	0	0	0	<b>33</b>	<b>3</b>	2	0	0	0	0	0	0	0	17	3
Electrical Engg. (Illumination)	PG	<b>58</b>	33	0	16	1	0	0	3	0	5	0	0	0	0	0	<b>57</b>	<b>1</b>	3	0	0	0	0	0	0	0	31	1
Electrical Engineering (Eve.)	UG	<b>119</b>	84	11	11	0	0	0	1	1	11	0	0	0	0	0	<b>107</b>	<b>12</b>	0	1	0	0	0	0	0	0	3	0
ETCE	UG	<b>351</b>	181	14	66	6	15	4	32	1	23	1	3	0	5	0	<b>325</b>	<b>26</b>	11	1	0	0	0	0	1	0	36	1
ETCE	PG	<b>62</b>	32	5	10	2	3	0	2	0	7	0	1	0	0	0	<b>55</b>	<b>7</b>	1	0	0	0	0	0	0	0	33	4
ETCE (VLSI)	PG	<b>51</b>	20	20	3	3	0	0	2	0	2	1	0	0	0	0	<b>27</b>	<b>24</b>	0	0	0	0	0	0	0	1	12	9
ETCE (Robotics)	PG	<b>16</b>	8	6	2	0	0	0	0	0	0	0	0	0	0	0	<b>10</b>	<b>6</b>	0	0	0	0	0	0	0	0	1	2
FTBE (B.E)	UG	<b>152</b>	67	20	23	13	3	2	9	1	10	1	0	0	2	1	<b>114</b>	<b>38</b>	9	1	0	0	0	0	0	0	19	0
FTBE	PG	<b>20</b>	6	6	1	1	0	0	2	2	2	0	0	0	0	0	<b>11</b>	<b>9</b>	2	0	0	0	0	0	0	0	6	3
Information Technology	UG	<b>0185</b>	0090	0009	0037	0003	0011	0000	0016	0001	0013	0002	0001	0000	0002	0000	<b>0170</b>	<b>0015</b>	0009	0000	0000	0000	0000	0000	0000	0000	0013	0002

### Annual Report 2020-2021

Information Tech. (Software Engg.)	PG	0051	0021	0013	0010	0003	0001	0000	0000	0000	0003	0000	0000	0000	0000	0000	0035	0016	0000	0000	0000	0000	0000	0000	0001	0000	0018	0011
Information Technology (Software Engg.) TCS	PG	0018	0016	0002	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0016	0002	0000	0000	0000	0000	0000	0000	0000	0000	0016	0002
IEE (B.E)	UG	0120	0062	0006	0023	0004	0006	0000	0011	0000	0008	0000	0000	0000	0000	0000	0110	0010	0000	0000	0000	0000	0000	0000	0000	0000	0009	0000
IEE (B.Tech)	UG	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IEE	PG	0024	0014	0001	0004	0000	0000	0000	0003	0000	0002	0000	0000	0000	0000	0000	0023	0001	0002	0000	0000	0000	0000	0000	0000	0000	0020	0001
Mechanical Engineering	UG	554	297	7	109	6	34	0	49	1	36	3	2	0	10	0	537	17	19	0	0	0	0	0	1	0	66	0
Mechanical Engineering	PG	58	32	2	8	1	3	0	5	0	6	0	1	0	0	0	55	3	6	0	0	0	0	0	0	0	37	2
Mechanical Engg. (Automobile Engg.)	PG	37	27	0	7	0	0	0	2	0	1	0	0	0	0	0	37	0	0	0	0	0	0	0	0	0	30	0
Mechanical Engineering	UG (Eve.)	141	88	9	18	2	2	0	5	0	17	0	0	0	0	0	130	11	4	0	0	0	0	0	0	0	0	0
Metallurgical Engineering	UG	164	81	12	31	5	5	1	16	0	10	1	0	0	1	1	144	20	6	0	0	0	0	0	1	0	19	2
Metallurgical Engineering	PG	28	22	0	3	0	0	0	3	0	0	0	0	0	0	0	28	0	3	0	0	0	0	0	0	0	28	0
Pharmacy	UG	288	114	26	55	10	12	5	32	2	25	1	0	0	6	0	244	44	22	1	0	0	0	0	4	3	31	4
Pharmacy	PG	57	20	17	3	8	1	0	3	0	2	2	0	0	1	0	30	27	2	0	0	0	0	0	0	0	16	12
Pharmacy (Clinical Pharmacy)	PG	6	3	2	0	0	0	0	0	1	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
Power Engineering	UG	0114	0055	0005	0023	0006	0006	0000	0009	0000	0008	0002	0000	0000	0000	0000	0101	0013	0007	0000	0000	0000	0000	0000	0000	0000	0005	0001
Power Engineering	PG	0032	0019	0001	0007	0000	0000	0001	0004	0000	0000	0000	0000	0000	0000	0000	0030	0002	0002	0000	0000	0000	0000	0000	0000	0000	0018	0001
Printing Engineering	UG	0075	0029	0012	0014	0003	0003	0000	0008	0000	0006	0000	0000	0000	0000	0000	0060	0015	0008	0000	0000	0000	0000	0000	0000	0000	0004	0000

### Annual Report 2020-2021

Printing Engineering	PG	0018	0005	0008	0001	0001	0000	0000	0001	0000	0000	0000	0002	0000	0000	0000	0009	0009	0001	0000	0000	0000	0000	0000	0000	0000	0000	0003	0005
Production Engineering	UG	201	102	10	41	7	4	0	20	1	12	2	0	0	2	0	181	20	8	0	0	0	0	0	0	1	0	17	2
Production Engineering	PG	27	19	0	6	0	0	0	1	0	1	0	0	0	0	0	27	0	1	0	0	0	0	0	0	0	0	18	0
<b>Total</b>		<b>5928</b>	<b>2920</b>	<b>459</b>	<b>1065</b>	<b>182</b>	<b>221</b>	<b>36</b>	<b>479</b>	<b>35</b>	<b>403</b>	<b>42</b>	<b>19</b>	<b>2</b>	<b>60</b>	<b>5</b>	<b>5167</b>	<b>761</b>	<b>240</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>19</b>	<b>8</b>	<b>995</b>	<b>139</b>	

- \* NOTE :- The figures appearing in Minority, Foreign and Other State are already included in the total column.
- \* NOTE:- No Third Gender has been admitted in the session 2020-

**JADAVPUR UNIVERSITY**  
**Faculty of Inter Disceplenary School Law & Management (FISLM)**  
**Session:2020-21**

Faculty of Inter Disceplenary	Courses	Total no. of students (Category wise)																Minority*			Foreign*		Other State*						
		Total Student	General		S/C		S/T		OBC-A		OBC-B		Sports/ QIP		PD		TOTAL		Muslims		Christians		Others						
			M	F																									
Adult Cont. Education (Mental Retardation)	UG	0	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Adult Cont. Education (Multiple Disabilities)	UG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

### Annual Report 2020-2021

M.A. Journalism and Mass Communication - First Year	PG	97	23	30	14	11	0	2	4	5	5	3	0	0	0	0	46	51	2	3	0	0	0	0	0	0	13	7
School of Bioscience & Engineering	PG	28	11	9	2	1	0	1	2	0	2	0	0	0	0	0	17	11	2	0	0	0	0	0	0	0	7	3
School of Education Technology (MMD)	PG	20	9	6	2	1	0	0	1	0	0	1	0	0	0	0	12	8	1	1	0	0	0	0	1	0	4	3
School of Education Technology (IT Courseware)	PG	47	22	15	3	1	2	0	0	0	4	0	0	0	0	0	31	16	1	0	0	0	0	0	0	0	14	5
School of Energy studies	PG	32	19	1	6	0	0	0	3	0	3	0	0	0	0	0	31	1	3	0	0	0	0	0	0	0	18	0
School of Nuclear Studies	PG	30	20	3	3	0	0	0	0	0	4	0	0	0	0	0	27	3	0	0	0	0	0	0	0	0	14	2
School of Laser Science and Engg.	PG	22	10	3	3	1	0	1	2	0	2	0	0	0	0	0	17	5	2	0	0	0	0	0	0	0	7	4
M.Tech Distributed and Mobile Computing	PG	35	16	10	4	1	0	1	1	0	1	1	0	0	0	0	22	13	1	0	0	0	0	0	0	0	12	6
School of Environmental Studies (Environmental -Bio-Tech.)	PG	24	7	9	1	2	0	1	1	0	2	1	0	0	0	0	11	13	1	0	0	0	0	0	0	0	7	4
Water Resource Engg. (4th Sem)	PG	46	20	4	9	1	1	0	6	0	5	0	0	0	0	0	41	5	5	0	0	0	0	0	0	0	25	1
Water Resource Engg. (6th Sem.)	PG	70	27	11	13	3	1	0	4	0	7	3	0	0	1	0	53	17	3	0	0	0	0	0	1	0	24	8

### Annual Report 2020-2021

School of Illumination Engg.	PG	65	37	10	10	2	0	0	4	0	2	0	0	0	0	0	53	12	3	0	0	0	0	0	0	0	0	13	6
School of Nano Science and Tech.	PG	45	22	8	5	1	1	0	4	1	3	0	0	0	0	0	35	10	2	0	0	0	0	0	0	0	17	3	
School of Womens Studies	M.Phil	32	3	13	2	5	0	1	2	3	2	0	0	0	1	0	10	22	0	2	0	0	0	0	0	0	0	1	
School of Cognitive Science	M.Phil	4	1	1	1	0	0	0	0	1	0	0	0	0	0	0	2	2	1	0	0	0	0	0	0	0	0	0	
School of Languages and Linguistics	PG	62	9	33	5	4	0	0	3	2	0	5	1	0	0	0	18	44	0	0	0	0	0	0	0	0	0	5	
School of Languages and Linguistics	M.Phil	16	6	7	1	1	0	0	1	0	0	0	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	
School of Oceanographic Studies	M.Phil	25	6	6	3	3	1	0	2	1	1	1	0	0	0	1	13	12	0	1	0	0	0	0	0	0	0	0	
<b>Total</b>		<b>700</b>	<b>268</b>	<b>179</b>	<b>87</b>	<b>38</b>	<b>6</b>	<b>7</b>	<b>40</b>	<b>13</b>	<b>43</b>	<b>15</b>	<b>1</b>	<b>00</b>	<b>2</b>	<b>1</b>	<b>447</b>	<b>253</b>	<b>27</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>00</b>	<b>175</b>	<b>58</b>	

\* NOTE :- The figures appearing in Minority, Foreign and Other State are already included in the total column.

\* NOTE:- No Third Gender has been admitted in the session 2020-21

## Annual Report 2020-2021

### JADAVPUR UNIVERSITY FACULTY OF SCIENCE

Session : 2020-21

SCIENCE	Courses	Total no. of students (Category wise)															Minority*						Foreign*		Other State*			
		Total Student	General		S/C		S/T		OBC-A		OBC-B		Sports/QIP		PD		TOTAL		Muslims		Christians		Others					
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
CHEMISTRY	UG	173	57	41	20	18	1	3	11	2	10	7	1	2	0	0	100	73	11	3	0	1	0	0	0	2	1	2
CHEMISTRY	PG	85	26	21	15	7	1	3	4	2	3	1	0	0	1	1	50	35	3	1	0	0	0	0	0	0	0	0
CHEMISTRY	PG (EVE.)	79	29	23	5	4	3	0	6	1	4	3	0	0	1	0	48	31	4	2	0	0	0	0	1	0	4	2
GEOLOGICAL SC.	UG	131	50	16	18	13	1	1	4	5	13	7	2	1	0	0	88	43	6	5	0	1	0	0	0	0	1	0
GEOLOGICAL SC.	PG	60	20	14	8	6	0	0	2	2	6	2	0	0	0	0	36	24	2	0	0	0	0	0	1	0	1	0
GEOGRAPHY	UG	42	9	16	7	3	0	1	0	0	3	1	1	1	0	0	20	22	0	0	0	0	0	0	1	0	1	1



### Annual Report 2020-2021

<b>GEOGRAPHY</b>	<b>PG</b>	<b>41</b>	<b>10</b>	<b>12</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>20</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>MATHEMATICS</b>	<b>UG</b>	<b>271</b>	<b>103</b>	<b>44</b>	<b>50</b>	<b>13</b>	<b>4</b>	<b>3</b>	<b>20</b>	<b>7</b>	<b>22</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>201</b>	<b>70</b>	<b>22</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>1</b>
<b>MATHEMATICS</b>	<b>PG</b>	<b>146</b>	<b>46</b>	<b>18</b>	<b>33</b>	<b>10</b>	<b>4</b>	<b>3</b>	<b>13</b>	<b>2</b>	<b>13</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>111</b>	<b>35</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>
<b>MATHEMATICS</b>	<b>PG (EVE.)</b>	<b>141</b>	<b>53</b>	<b>39</b>	<b>18</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>4</b>	<b>7</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>84</b>	<b>57</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>2</b>
<b>PHYSICS</b>	<b>UG</b>	<b>219</b>	<b>93</b>	<b>22</b>	<b>43</b>	<b>11</b>	<b>7</b>	<b>2</b>	<b>17</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>177</b>	<b>42</b>	<b>14</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>PHYSICS</b>	<b>PG</b>	<b>90</b>	<b>28</b>	<b>14</b>	<b>17</b>	<b>10</b>	<b>2</b>	<b>0</b>	<b>8</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>61</b>	<b>29</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>PHYSICS</b>	<b>PG (EVE.)</b>	<b>80</b>	<b>25</b>	<b>18</b>	<b>15</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>55</b>	<b>25</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>1</b>
<b>Medical Physics</b>	<b>PG Diploma</b>	<b>10</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>LIFE SCIENCE &amp; BIO TECH.</b>	<b>PG</b>	<b>57</b>	<b>15</b>	<b>20</b>	<b>6</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>35</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>ELECTRONICS SC.</b>	<b>PG</b>	<b>36</b>	<b>12</b>	<b>7</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>14</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>2</b>
<b>Instrumentation Science</b>	<b>PG</b>	<b>34</b>	<b>16</b>	<b>9</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>9</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Total</b>		<b>1695</b>	<b>596</b>	<b>338</b>	<b>268</b>	<b>126</b>	<b>28</b>	<b>20</b>	<b>102</b>	<b>39</b>	<b>119</b>	<b>41</b>	<b>8</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>1125</b>	<b>570</b>	<b>98</b>	<b>36</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>32</b>	<b>15</b>

\* NOTE :- The figures appearing in Minority, Foreign and Other state are already included in the total column.

\* NOTE :- No Third Gender has been admitted in the session 2020-21.