

## **DETAILS**

Course Name:

**HANDSON OPERATING SYSTEM – COMMANDS & APPLICATIONS USING LINUX**

Total Hours: 45 HRS

### **MODULE 1: BASIC CONCEPT**

UNIT 1 - Files and Directories

UNIT 2 - Users and Groups

UNIT 3 - Processes

UNIT 4 - Input / Output

UNIT 5 - The command shell

UNIT 6 - Kernel and Modules

UNIT 7 - Networking Subsystems

### **MODULE 2: COMMANDS RELATED TO FILES AND DIRECTORIES**

A) ls, cat, chmod, chown, ln, head, tail, rm, cp, mv, touch, cd, mkdir

B) Two common text editor - nano and vi

### **MODULE 3: PROCESSES AND SIGNALS**

A) Commands related to processes and signals

B) ps, exec, kill, trap

C) State transition of processes

D) Daemon processes and services

E) pid, ppid and processes status in ps

F) Searching for a process by command name- Introduction to pipes and grep

G) Running a process in the background

#### MODULE 4: INPUT, OUTPUT, REDIRECTION, PIPES AND FILTERS

- A) echo, read
- B) pipes
- C) stdin, stdout, stderr
- D) i/o redirection
- E) pipe, tee
- F) common filters like tr, cut, uniq, sort, grep

#### MODULE 5: SOME BASICS OF BASH SCRIPTING AND MINI PROJECT

- A) A first shell script
- B) Conditionals and loops - test, if, for, while
- C) MINI PROJECT 1 - Finding all children of a given process using standard filters

#### MODULE 6: SED, AWK, GREP

- A) MINI PROJECT 2 - Repeat MINI PROJECT 1 with awk and grep
- B) MINI PROJECT 3 - Build your own file based student database using bash, awk, grep and common filters

#### MODULE 7: SYSTEM STARTUP

- A) Basic OS startup sequence - sched, init, getty, login, bash
- B) bashrc, bash\_profile and /etc/profile
- C) Login using ssh, putty, installing openssh-server
- D) scp, sftp

## MODULE 8: FILE SYSTEM INTERNALS

- A) inodes, directories - the traditional UNIX filesystem
- B) The LINUX/UNIX view of hard drives and device files
- C) Partitions, filesystem types, creating a filesystem, fdisk, filesystem consistency check, fsck
- D) The virtual filesystem

## MODULE 9: DEVICES AND DEVICE DRIVERS

- A) File abstraction of hardware devices
- B) The device driver abstraction
- C) Modern drivers - modprobe, insmod, lsmod, rmmod
- D) Installing a modular driver

## MODULE 10: UPDATING, UPGRADING AND PACKAGE INSTALLATION

- A) yum, apt, dpkg
- B) Update, upgrade, dist-upgrade
- c) Adding a custom repository
- D) Installing packages and removing packages

## MODULE 11: THE NETWORKING SUBSYSTEM

- A) Basics of IP address and MAC address
- B) ifconfig, ping, nslookup, netstat
- C) Configuring DHCP
- D) Configuring static IPs
- E) Configuring Wi-Fi

F) Firewalls - IP tables/ ufw

G) Restarting networking services

H) The network manager applet

## MODULE 12: SCHEDULING PERIODIC TASKS AND AUTOMATING HOUSEKEEPING ACTIVITIES

A) cron

B) users and groups

C) du and df

D) Sending automated emails

E) Backup and restore and automated scheduling of backups

F) Automated healthcheckup - a basic outline