Syllabus

Panjab University

(Operating System Concepts and Linux)

L T P Cr   **External Marks: 65**

6 - - 3   **Internal Marks: 10**

Time Duration: 3 Hrs.   **Number of Lectures: 60**

Objective: *The objective of the module is to create skills of students in operating systems concepts and Linux commands.*

Note:

(i) The Question Paper will consist of Four Units.

(ii) Examiner will set total of **NINE** *questions comprising* **TWO** *questions from each Unit and* **ONE** *compulsory question of short answer type covering whole syllabi.*

(iii) The students are required to attempt **ONE** *question from each Unit and the Compulsory question.*

(iv) All questions carry equal marks unless specified.

Unit – I

Operating Systems (OS): Introduction, its needs and services, Types of OS: Multi-user, Multitasking, Multiprocessing and Real time Operating Systems, Parallel systems, Distributed systems

Process Management: Introduction to Process, PCB, Process States, CPU Scheduling: Scheduling Criteria and Algorithms: FCFS, SJF, Priority, Round Robin, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling

Unit – II

Deadlocks: Necessary and sufficient conditions for Deadlocks, Introduction to methods for handling deadlocks, deadlock detection and recovery

Memory Management: Logical Vs. Physical address space, Swapping, Introduction to paging, Segmentation, Virtual Memory-Demand paging, Introduction to Page Replacement algorithms: FIFO, Optimal Page replacement and LRU

Unit – III

Introduction to Linux: Linux's shell, Kernel, Features of Linux, History, Minimum system requirements, Boot and Root disks, Starting and stopping Linux system,

passwords, logging in and out, terminal Handling commands: who, Understanding wildcards, Environment variables.

Understanding I/O Redirection and Piping: Introduction, cut, paste, sort, tee; Introduction to Regular Expressions and grep.

Using file system: Introduction to common types of files, Filenames, Introduction to different types of directories: Parent, Subdirectory, Home directory; rules to name a directory, Important directories in Linux File System, Absolute and relative filenames, creating files and directories, listing (Is), pwd, moving and copying files (mv, cp), moving directories, Removing files and directories, using wildcards with files and directories, File and directory permissions using relative and absolute methods, Changing group ownership, umask settings

Unit – IV

Process Management: Types of processes, ps, bg, fg, nice, kill.

Understanding System Administration activities: Superuser (su) command, Taking backups using tar, Managing disk space, Mounting and Un-mounting file system, Managing users, Managing printers with lpd, mknod, lpc, lpq, lprm.

Vi editor: starting vi, vi modes, inserting text, quitting vi, deleting text, copying and moving text, searching and replacing text.