BCA514 (DSE): UNIX and Shell Programming

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week	Class Test -12Marks
Tutorials: 1 hr/Week	Teachers Assessment - 6Marks
	Attendance – 12 Marks
Credits: 4	End Semester Exam – 70 marks

Prerequisite: - DOS Operating System

Course Objectives:

1. To familiarize the students with the Operating System.
2. To demonstrate the process, memory, file and directory management issues under the UNIX
3. Operating system.
4. To introduce UNIX basic commands.
5. To make students how to make simple programs in UNIX and administrative task of UNIX.

Detailed Syllabus

UNIT I (6 Hours)   **Introduction to UNIX**: features of UNIX, Shell Vs Kernel, types of shell, System Calls, Systemcalls Vs Library functions, UNIX file System, The Parent-Child Relationship, Orphan, Zombie, UNIX Architecture, UNIX Commands.
UNIT II (10 Hours)   The first faltering step(Login), Password, Password Ageing, files related commands, Symbolic links, Listing Files & directories, Hidden files, Shell Meta characters, Masking file permission, Changing file permission(Absolute & Symbolic mode), Sticky bit, Directory related commands, Best calculator.
UNIT III (10 Hours)   The UNIX file system, INODE Table, Disk related commands, File related commands, viewing files, Locating files, Taking printouts, File Compression (File Compression & Archiving), Filters, The Stream Editors, I/O redirection & Piping, Command substitution.
UNIT IV (10 Hours)   Process basic, process status, Mechanism of process creation, Job Control, background processes, Killing a process, Daemon, Changing process priorities, Scheduling a process, processsynchronization, Semaphores, Communication In UNIX,   System Administration in UNIX- the System administrator's login, the administrator's privileges, Adding & Removing groups, user's management, Booting & Shutdown, Making afile system, Mounting & Unmounting File system.
UNIT V (10 Hours)   Editor, types of editor (vi and ed), Modes of operation in vi, Navigation in vi (use of h, j, k and lkeys), word navigation (use of b, e and w keys), Scrolling, deleting text, copy & paste in vi, block commands, Searching, Find & replace, Abbreviation(abbr), set command.

UNIT VI (10 Hours)
Shell Scripts/program, need of shell scripts, Interactive shell scripts, shell variables, shell keywords, System variables, shell keywords, System variables, user defined variables, Command line arguments, exit and status of command, use of operators, Control Instructions in shell.

Text and Reference Books
1. UNIX shell programming By Yashvant Kanetkar ---BPB Publications
2. UNIX Concepts and Application By Sumitabha Das--- Tata McGraw-Hill publication
3. The C Odyssey UNIX the open boundless C By Meeta Gandhi--- BPB Publications

Course Outcomes:

After completing the course, students will be able to:

1. Knowledge about working environment in UNIX.
2. Knowledge about the UNIX commands to perform different tasks.
3. Difference between DOS and UNIX environment.
4. Create or design different scripts using shell programming.
5. Implement process, thread, semaphore concept of operating system
6. Responsibilities and duties of a system administrator along with the knowledge how to grant permission to users, create user account etc.