CSH517: UNIX and Shell Programming

Teaching Scheme	Examination Scheme
Lectures: 4 hrs/Week	Class Test -20 Marks
Tutorials: 2 hr/Week	Teachers Assessment – 10 Marks
	Attendance – 20 Marks
Credits: 6	End Semester Exam – 100 marks

Prerequisite: Operating Systems, DOS, C-Language etc.

Course Objectives:

Detailed Syllabus

Unit-1
Introduction to UNIX: features of UNIX, Shell Vs Kernel, types of shell, System Calls, System calls Vs Library functions, UNIX file System, The Parent-Child Relationship, Orphan, Zombie, UNIX Architecture, UNIX Commands

Unit-2
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-3
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-4
Process basic, process status, Mechanism of process creation, Job Control, background processes, Killing a process, Daemon, Changing process priorities, Scheduling a process, process synchronization, Semaphores, Communication In UNIX,
System Administration in UNIX- the System administrator's login, the administrator's privileges, Adding & Removing groups, user's management.

Unit-5
Editor, types of editor (vi and ed), Modes of operation in vi, Navigation in vi (use of h, j, k and l keys), 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-6
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 Book
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. To define operating system, its features, shell, types, kernal, about commands in UNIX.
2. To understand basic building commands to accomplish specific task, UNIX commands, syntax
    and semantics.
3. To Implement basic building commands, working with editors.
4. To focus on contemporary approach of shell programming stressing the importance of clarity,
    legibility and efficiency in script design along with the knowledge of shell variables and
    keywords.
5. To test and organize different techniques pertaining problem solving skills and to validate the
    usefulness of elementary shell scripts in the context of real-world problems and day to day
    problems/ regular jobs/ system related jobs.
6. To design a shell script of a problem; writing shell scripts, compilation and debugging various   shell scripts.