

Course code	Course Name	L-T-P - Credits	Year of Introduction
IT363	Unix Shell Programming	3-0-0-3	2016
<b>Pre-requisites:</b> IT 201 <i>Operating Systems</i>			
<b>Course Objectives</b> <ul style="list-style-type: none"> <li>To learn the architecture UNIX and important features of UNIX.</li> <li>To familiarize the basic commands used in UNIX.</li> <li>To describe the TCP/IP networking tools used in UNIX.</li> <li>To familiarize the text processing utilities grep, sed, awk.</li> <li>To discuss the shell programming concept.</li> <li>To develop programs using shell script.</li> </ul>			
<b>Syllabus</b> Introduction to UNIX, Architecture, features, Basic commands, utilities, editors, UNIX file system, UNIX shells, Pipes, tee command, filters, process in Unix, TCP/IP networking tools, usage o grep and sed, programming with awk, shell programming basics, shell programming constructs, advanced concepts in shell programming			
<b>Expected outcome .</b> <ul style="list-style-type: none"> <li>To familiarize the UNIX operating system and the utilities for solving computing problems in a shell programming environment.</li> </ul>			
<b>Text Book:</b> <ol style="list-style-type: none"> <li>Sumitabha Das , “Unix the ultimate guide”, TMH. 2nd Edition.</li> <li>Behrouz A. Forouzan, Richard F. Gilberg,” Unix and shell Programming.”, Cengage Learning</li> </ol>			
<b>References:</b> <ol style="list-style-type: none"> <li>Kernighan and Pike, “Unix programming environment”, PHI. / Pearson Education</li> <li>Graham Glass, King Ables,” Unix for programmers and users”, 3rd edition, Pearson Education</li> <li>Maurice J. Bach, “The Design of the Unix Operating System”, First Edition, Pearson Education, 1999</li> </ol>			
<b>Course Plan</b>			
Module	Contents	Hours	Sem. Exam Marks
<b>I</b>	Introduction to Unix:- Architecture of Unix, Features of Unix , Introduction to unix file system, Basic Unix Commands – General-purpose utilities, vi editor	6	15%
<b>II</b>	The Unix file system – Parent-Child relationship – File types - File operations - File Permissions – File Ownership –File modification and access times – Directories – Directory permissions – File System and Inodes – Links and symbolic links – locating Files.	6	15%
<b>FIRST INTERNAL EXAMINATION</b>			
<b>III</b>	Introduction to Shells – Shell as command Processor – quotes, escape characters, wild cards – Redirection – pipes –tee command –variables –command substitution – filters	6	15%
<b>IV</b>	Concepts of process in Unix – process creation – process status – Background and foreground Jobs – Job Execution with low priority – Signals – Termination of process – Job control	8	15%

	TCP/IP Networking tools – talk, mesg, finger, telnet, rlogin, ftp, rcp, rsh – security for the Berkeley r-Utilities.		
<b>SECOND INTERNAL EXAMINATION</b>			
<b>V</b>	Filters using regular expressions – grep –sed – programming with awk – preliminaries, formatted output, variables, number processing, comparison operators, BEGIN and END sections, arrays, control flows, looping and functions.	8	20%
<b>VI</b>	Shell Programming – Shell variables – Shell scripts – positional parameters – Exit status of a command – logical operator – script termination – conditional branching – looping – sleep and wait - set and let commands – redirection – Exporting shell variables – Arrays – String handling – Conditional Parameter Substitution – Shell functions –eval and exec statements.	8	20%
<b>END SEMESTER EXAM</b>			

### QUESTION PAPER PATTERN

Maximum Marks: 100

Exam Duration: 3 hours

The question paper shall consist of Part A, Part B and Part C.

**Part A** shall consist of three questions of 15 marks each uniformly covering Modules I and II. The student has to answer any two questions (15×2=30 marks).

**Part B** shall consist of three questions of 15 marks each uniformly covering Modules III and IV. The student has to answer any two questions (15×2=30 marks).

**Part C** shall consist of three questions of 20 marks each uniformly covering Modules V and VI. The student has to answer any two questions (20×2=40 marks).

**Note :** Each question can have a maximum of 4 subparts, if needed