

Sub Title : Unix and Shell Programming		
Sub Code:CS33	No. of Credits:3=3 : 0 : 0 (L-T-P)	No. of lecture hours/week : 3
Exam Duration : 3 hours	CIE +Assignment + SEE = 45 + 5 + 50 =100	Total No. of Contact Hours :42

Course objectives:

1. Understand the UNIX Architecture, File systems and use of basic Commands.
2. Use of editors and Networking commands.
3. Understand Shell Programming and to write shell scripts.
4. Understand and analyze Process Creation, Control & Relationship 1.

UNIT No	Syllabus Content	No of Hours
1	Introduction - Why UNIX?, Computer System, The UNIX Environment, UNIX Structure, Accessing Unix, Commands, Common Commands, Other Useful Commands. File Systems - Filenames, File types, Regular Files, Directories, File System Implementation, Operations Unique to Directories, Operations Unique to Regular Files, Operations Common to Both. Security and File Permission – Users and Groups, Security Levels, Changing permissions, User masks, Changing Ownership and group.	08
2	Filters – filters and pipes, concatenating files, display and beginning of files, cut and paste, sorting, translating characters, files with duplicated lines, count characters, words or lines, comparing files. Communications – User Communication, Electronic Mail, Remote Access, File Transfer.	08
3	The Basic vi Editor –Editor Concepts, The Vi editor, Modes, Commands, Command Categories, Local Commands in vi, Range commands in vi, Global Commands in vi, Rearrange Text in vi Regular expressions – Atoms, operators Grep – operation, grep family, searching for file content	09
4	Process – process basics, ps: process status, System processes, Mechanism of process creation, Internal and external commands, process states and zombies, Running jobs in background, nice:job execution with low priority, killing processes with signals, job control, at and batch: execute later, cron: Running job periodically, time: Timing processes.	08

5	Introduction to Shells- Unix Session , Standard Streams , Redirection, Pipes, tee command, Command execution, Quotes, Command substitution, Job Control, Aliases, Variables, predefined variables, Options, Shell/Environment Customization. Shell Programming – Basic Script Concepts, Expressions, Decisions: Making Selections, Repetition, Special Parameters and variables, Changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.	09
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Note 1: Unit 3 and Unit 5 will have internal choice.
Note 2: Three assignments are evaluated for 5 marks:

- Assignment - 1 from units 1 and 2.
- Assignment - 2 from units 3 and 4.
- Assignment - 3 from unit 5.

Course Outcomes:

- CO1:** Understand UNIX OS basic features and its file system
- CO2:** Interpret UNIX Commands, communication, Shell basics, and shell environments
- CO3:** Understand UNIX process control, relationships, commands and utilities
- CO4:** Design and develop shell programming

Cos	Mapping with POs
CO1	PO1,PO2,PO3,PO5
CO2	PO1,PO2,PO3,PO5
CO3	PO1,PO2,PO3,PO5
CO4	PO1,PO2,PO3,PO5

TEXT BOOK:

1. Behrouz A. Forouzan, Richard F. Gilberg : UNIX and Shell Programming- Cengage Learning – India Edition. 2009.
2. Sumitabha Das: UNIX – Concepts and Applications,4th Edition, Tata McGraw Hill.

REFERENCE BOOKS/WEBLINKS:

1. Richard Blum , Christine Bresnahan : Linux Command Line and Shell Scripting Bible, 2ndEdition , Wiley,2014
2. M.G. Venkateshmurthy: UNIX & Shell Programming, Pearson Education.
3. Yashvanth Kanetkar:Unix shell programming, BPB publications, 2003 edition