III YEAR SEM-I B.Tech CSE	ELECTIVE	L	T	P	C
Code: CS3501	Unix and Shell Programming	2	2	0	4

UNIT I – Introduction to UNIX

Architecture of Unix, Features of Unix , Unix Commands – PATH, man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, rmdir, ls, cp, mv, rm, cat, more, wc, lp, od, tar, gzip.

UNIT II - UNIX Utilities

Introduction to unix file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, unlink, du, df, mount, umount, find, unmask, ulimit, ps, w, finger, arp, ftp, telnet, rlogin.Text processing utilities and backup utilities , detailed commands to be covered are tail, head , sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, cpio

UNIT III – Introduction to Shells & Filters

Introduction to Shells : Unix Session, Standard Streams, Redirection, Pipes, Tee Command, Command Execution, Command Line Editing, Quotes, Command Substitution, Job Control, Aliases, Variables, Predefined Variables, Options, Shell/Environment Customization.

Filters: Filters and Pipes, Concatenating files, Display Beginning and End of files, Cut and Paste, Sorting, Translating Characters, Files with Duplicate Lines, Count Characters, Words or Lines, Comparing Files.

UNIT IV – grep, sed, awk

grep : Operation, grep Family, Searching for File Content.

sed : Scripts, Operation, Addresses, commands, Applications, grep and sed.

awk: Execution, Fields and Records, Scripts, Operations, Patterns, Actions, Associative Arrays, String Functions, String Functions, Mathematical Functions, User – Defined Functions, Using System commands in awk, Applications, awk and grep, sed and awk.

UNIT V – Korn shell programming

Interactive Korn Shell: Korn Shell Features, Two Special Files, Variables, Output, Input, Exit Status of a Command, eval Command, Environmental Variables, Options, Startup Scripts, Command History, Command Execution Process.

Korn Shell Programming: Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

UNIT VI – C shell programming

Interactive C Shell: C shell features, Two Special Files, Variables, Output, Input, Exit Status of a Command, eval Command, Environmental Variables, On-Off Variables, Startup and Shutdown Scripts, Command History, Command Execution Scripts.

C Shell Programming: Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

UNIT VII – File Management

File Structures, System Calls for File Management – create, open, close, read, write, lseek, link, symlink, unlink, stat, fstat, lstat, chmod, chown, Directory API – opendir, readdir, closedir, mkdir, rmdir, umask.

Text Books:

1. Behrouz A. Forouzan & Richard F. Gilberg, "Unix and Shell Programming", 1st edition, Cengage Learning, 2003

2.Sumitabha Das, "Your Unix: The Ultimate Guide", 1st edition, Tata Mcgraw hill, 2001

3. M.G.Venkateshmurthy, "Introduction to Unix and Shell Programming", 1st edition, Pearson Education, 2005

Reference Books:

1.Graham Glass, King Ables, "Unix for programmers and Users", 3rd edition, Pearson Education, 2003

2. Kernighan & Pike, "The UNIX Programming Environment", 1st edition, Pearson Education India, 2015

3. Ken Rosen, James Farber, Rachel Klee, Douglas Host, and Dick Rosinski, " Unix: The Complete Reference", 2nd edition, McGraw Hill Education, 2007

4. Advance UNIX: A Programmer's Guide, Stephen Prata. Sams Publisher