

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA****III Year B.Tech. Computer Science Engineering. II-Sem.****UNIX PROGRAMMING****UNIT-I:**

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

**UNIT-II:**

Working with the Bourne shell: what is a shell, shell responsibilities, pipes and input Redirection, output redirection, here documents, the shell as a programming language, shell meta characters, shell variables, shell commands, the environment, control structures, shell script examples.

**UNIT-III:**

Unix file structure, directories, files and devices, System calls, library functions, low level file access, usage of open, creat, read, write, close, lseek, stat, fstat, octl, umask, dup, dup2. The standard I/O (fopen, fclose, fflush, fseek, fgetc, getc, getchar, fputc, putc, putchar, fgets, gets ) file and directory maintenance (chmod, chown, unlink, link, symlink, mkdir, rmdir, chdir, getcwd), Directory handling system calls (opendir, readdir, closedir, rewinddir, seekdir, telldir)

**UNIT-IV:**

Unix Process: What is process, process structure, starting new process, waiting for a process, zombie process, process control, process identifiers, system call interface for process management-fork, vfork, exit, wait, waitpid, exec, system.

**UNIT-V:**

Signals- Signal functions, unreliable signals, interrupted system calls, kill and raise functions, alarm, pause functions, abort, sleep functions.

**UNIT-VI:**

Interprocess Communication Overview: Introduction to IPC-IPC between processes on a single computer system, IPC between processes on different

systems, pipes, FIFOs, streams and messages, namespaces

**UNIT-VII:**

Semaphores-Unix system-V semaphores, unix kernel support for semaphores, file locking with semaphores.

**UNIT-VIII:**

Sockets: Introduction, UNIX domain protocol, Socket addresses, elementary socket, System calls

**TEXT BOOKS:**

1. Unix Network Programming, W.R.Stevens Pearson/PHI.
2. Unix the ultimate guide, 3rd Edition, Sumitabha Das, TMH.
3. Unix and Shell Programming Behrouz A. Forouzan, Richard F Gilberg, CENGAGE

**REFERENCE BOOKS:**

1. [http://nptel.iitm.ac.in/courses/Webcourse-contents/IISc-BANG/Operating%20Systems/pdf/Lecture\\_Notes/Mod%2013\\_LN.pdf](http://nptel.iitm.ac.in/courses/Webcourse-contents/IISc-BANG/Operating%20Systems/pdf/Lecture_Notes/Mod%2013_LN.pdf)
2. Advanced UNIX Programming, N B Venkateswarlu, BS publications.2e.