Course outcomes:

- Solve problems using bash for shell scripting
- Work confidently in Unix/Linux environment

Syllabus:

UNIT I

Linux Utilities-File handling utilities, Security by file permissions, Process utilities, Disk utilities, Networking commands, Filters- Text processing utilities and Backup utilities-Sed-Scripts, Operation, Addresses, Commands, Applications, awk- Execution, Fields and Records, Scripts, Operation, Patterns, Actions, Associative Arrays, String and Mathematical functions, System commands in awk, Applications-Shell programming with Bourne again shell(bash)- Introduction, shell responsibilities, pipes and Redirection, here documents, running a shell script, the shell as a programming language, shell meta characters, file name substitution, shell variables, command substitution, shell commands, the environment, quoting, test command, control structures, arithmetic in shell, shell script examples, interrupt processing, functions, debugging shell scripts.

UNIT II

Files and Directories- File Concept, File types, File System Structure, file metadata-Inodes, kernel support for files, system calls for file I/O operations- open, create, read, write, close, lseek, dup2,file status information-stat family, file and record locking-lockf and fcntl functions, file permissions - chmod, fchmod, file ownership-chown, lchown, fchown, links-soft links and hard links – symlink, link, unlink. Directories- Creating, removing and changing Directories-mkdir, rmdir, chdir, obtaining current working directory-get cwd, Directory contents, Scanning Directories-open dir, read dir, closedir, rewinddir, seekdir, telldir functions.

UNIT III

Process – Process concept, Kernel support for process, process identification, process hierarchy, process states, process control - process creation, waiting for a process, process termination, zombie process,

orphan process, system call interface for process management-fork, vfork, exit, wait, waitpid, exec family, system, I/O redirection-Signals – Introduction to signals, Signal generation and handling, Kernel support for signals, Signal function, unreliable signals, reliable signals, kill, raise , alarm, pause, abort, sleep functions.

Reference Text Books:

       1. The Linux Programming Interface by Michael Kerrisk