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| Devi Ahilya University, Indore, India Institute of Engineering & Technology | | | MSc – I Year (Applied Mathematics) with Specialization in Computing & Informatics Semester- IV | | | | |
| Subject Code & Name | Instructions Hours per Week | | | Credits | | | |
| AM4EC2: Unix/Linux Administration | L | T | P | L | T | P | Total |
| | 3 | 1 | - | 3 | 1 | - | 4 |
| Duration of Theory Paper: 3 Hours | | | | | | | |

Learning Objective:

- To provide an introduction to an operating system that is assembled under the model of free and open source software development and distribution.
- To develop software in and for Linux/UNIX environments.
- Understanding the basic set of commands and utilities in Linux/UNIX systems.
- To learn to develop software for Linux/UNIX systems.
- To understand the inner workings of UNIX-like operating systems.

Prerequisites: Basics of DOS.

COURSE OF CONTENTS

UNIT I

Evolution of Unix OS, philosophy. Features of Unix operating system, Basic Architecture of Unix/Linux system, features of Kernel and Shell. Unix File system - Boot block, super block, Inode table, data blocks, How Unix/Linux kernel access files, Unix/Linux standard file system.

UNIT II

Basic UNIX environment: Basic commands, directory management, pipes, tee, I/O redirection and other utilities. **Advanced commands:** File system and process management commands, Shell, Pattern matching, Navigating the File Systems.

UNIT III

Unix editor: VI editor, Creating new files. Text addition, deletion and changes. Dealing with sentences and paragraphs. Searching. Cut, paste and copy. Running C/C++ programs. **Shell programming:** Features of shell. Shell variables. Control statements. **Advance shell programming:** Command line arguments. Interactive shell scripts. Debugging of shell scripts. Communication facilities in Unix, Mathematical commands.

UNIT IV

Structure of Unix operating system: Structure of Unix kernel, Unix system calls. **Unix system:** File system calls, Process management calls. **Advance Filter:** Awk: Number processing, Interface with shell, functions.

UNIT V

Unix system administration: Adding and removing users. User accounting. Adding and removing hardware. Performing backups and restore. Disk space management. **Unix system administration:** Configuring the kernel. Network management in Unix. Performance analysis. Unix Desktop. Installation of Unix/Linux system – Unix/Linux Installation requirement, complete Procedure steps, Partitioning the Hard drive, System startup and shut-down process, init and run levels. File system mounting, lpstat, backup strategy, installing software on Unix/Linux.

Learning Outcomes:

Upon completing the course, students will be able to:

- Ability to Plan, Deploy and Linux Server

- Ability Monitor and Manage Linux Server.
- Perform the tasks of a Network Administrator.
- Write programme in using shell programming.

BOOKS RECOMMENDED:

- [1] Sumitabh Das, UNIX Operating Systems, Tata McGraw Hills publication, 2006.
- [2] Syed Mansoor Sarwar, Robert Kortskey, UNIX, Pearson Education, 2004.
- [3] Sumitabha Das, Unix concepts and Application, Tata McGraw Hill, 2008.
- [4] David Bandel and R. Napier, Using Linux, 6th Ed., Pearson Education, 2014.