

**B.Sc. Part – III Computer Science (Optional) (Semester – V)**

**Course Code: DSE-E23      Computer Science Paper –XI**

**Course Title: Linux Operating System**

**Total Contact Hours: 36 Hrs (45 Lectures of 48 Min.)**

**Teaching Scheme: Theory – 03 Lect. / Week**

**Credits: 02**

**Total Marks: 50**

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**Course Outcomes:**

After successful completion of this course, students will able to:

- 1) learn architecture and basics of Linux Operating System.
- 2) understand the kernel-shell and general purpose utilities.
- 3) understand file system of Linux operating system.
- 4) learn Process management and Simple BASH Programming.

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**Unit – 1: Introduction to Linux, File System and System Calls**

**(18 Hrs.)**

**Introduction to Linux:** Operating System Basics, History of Linux, Architecture of Linux, Operating System Services, Shell, Types of Shell, Kernel, Login and Logout, General Purpose Utilities (banner, cal, date, calendar, who, tty, uname, password, lock, echo, tput, bc, clear, script, wc, echo, test, expr), Finding Information of commands.

**File System:** Basic file system management, Files Types, Boot block, Super block, Inode table, Storage and Accessibility of files, File and Directory Manipulation commands, File ownership and permission, File system commands, File locating command (find), File permissions.

**System Calls:** Open, Read, Write, Close

**Unit – 2: Process and BASH Shell Scripting**

**(18 Hrs.)**

**Process:** Process Basics and its options, Mechanism of Process Creation, Process States and Transitions, Killing Process with Signals, Process Management (background processing: No logging out, Log out safely, job scheduling using at and batch command, Nice, Corn).

**BASH Shell Scripting:** Shell Scripts, Choosing a Shell, Operators in BASH shell (Arithmetic, Relational, Logical, Assignment, Reassignment, Bit wise), Invoking the Shell Variables, Getting input from keyboard, Special Variables, Conditional Control Statement, Iterative Control Statements, Using test and [ ] to evaluate expressions.

**Reference Books –**

1. LINUX with Operating System Concepts by Richard Fox, CRC Press
2. Linux Commands- Instant Reference by Bryan PF affenberge
3. The Design of the Unix Operating System- Bach