

CS5L1

**3/4 B.Tech. FIRST SEMESTER
OPERATING SYSTEMS LAB
(Common to CSE & IT)
Required**

Credits: 2

Lecture: --
Lab: 3 periods/week

Internal assessment: 25 marks
Semester end examination: 50 marks

Course context and Overview: In this lab course, operating system design concepts, data structures and algorithms, and systems programming basics.

Prerequisites: Operating Systems, and a Programming Language

Objectives:

To provide an understanding of the design aspects of operating system
Which includes?

1. CPU Scheduling Algorithms,
2. Memory Management Schemes,
3. System Calls & UNIX Commands,
4. Inter process Communication tools.

Learning Outcomes:

Ability to:

1. Implement CPU scheduling algorithms and memory management schemes.
2. Use system calls and UNIX utilities to perform basic shell control.
3. Illustrate two-way communication using inter process communication concept.

List of Experiments:

1. Implement CPU Scheduling Algorithms: First Come First Serve & Shortest Job First.
2. Implement CPU Scheduling Algorithms: Priority & Round Robin.
3. Memory Management Scheme- I: Firstfit & Bestfit.
4. Memory Management Scheme-II: FIFO & LRU.
5. Basic UNIX Commands.
6. Shell Programming
 - a. Even or Odd
 - b. Biggest Of Two Numbers
 - c. Biggest Of Three Numbers
 - d. Factorial of Number
 - e. Fibonacci Series
7. System Calls of Unix Operating System

- a. Write a C Program to get File Statistics using stat () System Call.
- b. Wait: Use wait () to return the Parent Id of the child process.
- c. getpid: returns the Process Id, and Its Parent Pid.

8. System Calls of Unix Operating System

- a. fork: To create a child process.
- b. exec: To transform an executable binary file into process.
- c. opendir, readdir: To display the files in the given directory.

9. I/O System Calls of UNIX Operating System: open, write, read, close.

Program to simulate UNIX Commands: ls, cat, mv.

10. Write a C program that illustrates Two-way communication using IPC (pipe & FIFO).