21CS406PC	OPERATING SYSTEMS LAB	L	T	P	C
		0	0	3	1.5

PREREQUISITES:

- A course on “Programming for Problem Solving”.
- A course on “Computer Organization and Architecture”.

CO-REQUISITE:

- A course on “Operating Systems”.

COURSE OBJECTIVES:

- To understand the design aspects of operating system concepts through simulation
- To Introduce basic Unix commands, system call interface for process management, interprocess communication and I/O in Unix.

COURSE OUTCOMES: After Completion of the course, student will be able to

CO1: Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management.

CO2: Implement C programs using Unix system calls

LIST OF EXPERIMENTS:

1. Write C programs to simulate the following CPU Scheduling algorithms
2. FCFS b) SJF c) Round Robin d) priority
3. Write programs using the I/O system calls of UNIX/LINUX operating system (open, read, write, close, fcntl, seek, stat, opendir, readdir)
4. Write a C program to simulate Bankers Algorithm for Deadlock Avoidance and Prevention.
5. Write a C program to implement the Producer – Consumer problem using semaphores using UNIX/LINUX system calls.
6. Write C programs to illustrate the following IPC mechanisms
    a. Pipes b) FIFOs c) Message Queues d) Shared Memory
7. Write C programs to simulate the following memory management techniques
    a. Paging b) Segmentation

TEXT BOOKS:

1. Abraham Silberchatz, Peter B. Galvin, Greg Gagne, Operating System Principles, 7th Edition, John Wiley, 2006
2. W. R. Stevens, Advanced programming in the Unix environment, *Pearson* education, 2013

REFERENCE BOOKS:

1. William Stallings, Operating Systems – Internals and Design Principles, Fifth Edition, Pearson Education/PHI, 2005
2. Crowley, Operating System - A Design Oriented Approach, TMH, 2001
3. Andrew S Tanenbaum, Modern Operating Systems, 2nd edition, Pearson/PHI, 2001
4. Kernighan and Pike, UNIX Programming Environment, PHI/Pearson Education, 2016
5. U. Vahalia, UNIX Internals: The New Frontiers, Pearson Education, 2001