ANURAG ENGINEERING COLLEGE

(An Autonomous Institution)

(CS406PC) OPERATING SYSTEMS LABORATORY

II Year B.Tech. IT - II Sem

L	T	P	C
0	0	2	1

Prerequisites:

- A course on "Programming for Problem Solving", A course on "Computer Organization and Architecture".

Co-requisite: A course on" Operating Systems".

Course Objectives:

The objectives of this course are to provide:

- Analyze system calls that can offer operating system services
- Demonstrate various operating system concepts
- Understand and apply concepts to words new operating system design
- Understand the concept to f Deadlock and its avoidance and pager replacement algorithms
- Understand Unix commands, system calls

List of Experiments:

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

Course Outcomes:

Upon the successful completion of this course, the student will be able to:

1. Simulate and implement operating system concepts such as scheduling,
2. Able to implement C programs using Unix system calls
3. Implement the dead lock avoidance using banker's algorithm
4. Implement the producer and consumer problem and Page Replacement algorithms
5. Exercise inter-process communication.

Text Books:

1. Operating System Principles-Abraham Silberchatz, PeterB.Galvin, GregGagne 7thEdition, JohnWiley
2. Advanced programming in the Unix environment ,W.R. Stevens, Pearson education.

Reference Books:

1. Operating Systems – Internals and Design Principles, William Stallings, Fifth Edition–2005,PearsonEducation/PHI
2. Operating System-A Design Approach-Crowley,TMH.
3. Modern Operating Systems, Andrew STanenbaum, 2ndedition,Pearson/PHI
4. UNIX Programming Environment , Kernighanand Pike, PHI /Pearson Education
5. UNIX Internals: The New Frontiers, U. Vahalia , Pearson Education

CO-PO-PSO Mapping:

	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**		**PO-11**	**PO-12**	**PSO-1**	**PSO-2**
CO-1	H	M	M	L	L								L	M	H
CO-2	M	H	L	M	L								L	M	H
CO-3	M	L	H	L	L								M	M	H
CO-4	H	M	H											M	H
CO-5	H		M	L	L								L	M	H

H-HIGH **M**-MODERATE **L**-LOW