ANURAG ENGINEERING COLLEGE

(An Autonomous Institution)

III Year B. Tech. CSE - I Sem **L T/P/D C**
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(CS507PC) OPERATING SYSTEMS AND COMPUTER NETWORKS LAB

PART – A:

Prerequisites:

1. A course on “Computer Programming and Data Structures”

Co-Requisites:

1. A course on “Operating System”

Course Objectives:

- Analyze system calls that can offer operating system services
- Demonstrate various operating system concepts
- Understand and apply concepts towards new operating system design
- Understand the concept of Dead lock and its avoidance
- Developing page replacement algorithms

Week 1:
Write a programs using the following system calls of UNIX operating system: fork, exec, getpid, exit, wait, close, stat, opendir, readdir

Week 2:
Write a program to implement multi-threading

Week 3:
Give the list of processes, their CPU burst times and arrival times, display or print the Gantt chart for FCFS and SJF. For each of the scheduling policy compute and print the average waiting time and average turnaround time

Week 4:
Give the list of processes, their CPU burst times and arrival times, display or print the Gantt chart for Priority and Round Robin. For each of the scheduling policy compute and print the average waiting time and average turnaround time.

Week 5:
Implement producer consumer problem using semaphore?

Week 6:
Write a program to implement Banker’s algorithm for deadlock avoidance?

Week 7:

Write a program to implement page replacement algorithms (FCFS, Optimal, LRU)

Course Outcomes:

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

1. Understand system calls behavior and implement that can offer operating system services
2. Implement CPU Scheduling algorithms and Multi-threading
3. Implement the dead lock avoidance using banker's algorithm and the producer and consumer problem
4. Implement Page Replacement algorithms

CO-PO 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
CO 1	✓	✓	✓	✓	✓							
CO 2	✓	✓	✓	✓	✓							
CO 3	✓	✓	✓	✓	✓							
CO 4	✓	✓	✓	✓	✓							

PART – B:

Prerequisites: A course on "Computer Programming and Data Structures"

Co-Requisite:

1 A course on "Computer Networks"

Course Objectives:

- Understand data link layer framing methods
- Explain various error handling methods
- Learn the packet tracer software
- Implement various routing protocols

Week 1:

Implement data link layer framing methods such as

- Bit stuffing
- character stuffing

Week 2:

Implement error detection methods such as 16 bit CRC

Week 3:

Implement minimum hamming distance

Week 4:

Configure network topology using packet tracer software

Week 5:

Configure network topology using distance vector routing protocol

Week 6:
Configure network topology using state vector routing protocol.

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

1. Implement different data link layer framing methods
2. Analyze error control methods
3. Implement topology using packet tracer software
4. Implement different routing protocols

CO-PO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO 1			✓	✓	✓							✓
CO 2			✓	✓	✓	✓	✓					✓
CO 3			✓	✓	✓							✓
CO 4	✓		✓	✓	✓	✓	✓					✓