DEPARTMENT OF INFORMATION TECHNOLOGY & COMPUTER ENGINEERING

LESSON PLAN

SUBJECT: OPERATING SYSTEM

BRANCH: 4TH SEM, IT

FACULTY NAME: DR. ANITARANI BRAHMA

Department of Information Technology

Vision:

To focus on development of skilled and confident personalities of today and tomorrow by using cutting edge technology in the department of Information Technology to accept need based challenges with a sense of social responsibilities.

Mission:

- M1: To impart quality education by implementing state-of- the- art teaching-learning methods to enrich the academic competency, credibility and integrity of the students.
- M2: To implement the educational program in our department from fundamental engineering to recent technology as per emerging trends in the field of Information Technology.
- M3: To facilitate a conducive ambience and infrastructure to develop professional skills and nurture innovation in students.
- M4: To inculcate sensitivity towards society, respect for environment and promote high standards of ethics.

LEARNING OUTCOMES:

After completing this course, student will be able to:

- ✓ Explain the basic concept about the OS,
- ✓ Illustrate UNIX/LINUX architecture,
- ✓ Explain Process management, memory management and file management,
- ✓ Demonstrate I/O system including RAID,
- ✓ Explain the concept of deadlocks and measures to prevent them,
- ✓ Illustrate OS Security.

SUBJECT NAME: DATA STRUCTURE
SUBJECT CODE: TH 3
FACULTY NAME: DR ANITARANI BRAHMA
HOUR: 45 HR (WEEKLY LOAD 3HR)

Class No	Unit	Topic	Subtopics	Teaching Method	Learning Outcome	Remarks
1	Unit I	Overview of OS	Basic concepts, Functions, Types of OS	Lecture + PPT	Understand OS fundamentals	
2	Unit I	UNIX/LINUX Architecture	History, Features	Lecture + PPT	Understand OS fundamentals	
3	Unit I	UNIX/LINUX Architecture	Shell, File system	Lecture + PPT	Understand OS fundamentals	
4	Unit I	Kernel	Kernel functions	Lecture + PPT	Understand OS fundamentals	
5	Unit I	Kernel	Monolithic vs Microkernel	Lecture + PPT	Understand OS fundamentals	
6	Unit I	Services	OS services	Lecture + PPT	Understand OS fundamentals	
7	Unit I	System Calls	Types of system calls	Lecture + PPT	Understand OS fundamentals	
8	Unit I	System Calls	Examples	Lecture + PPT	Understand OS fundamentals	
9	Unit I	System Programs	Overview	Lecture + PPT	Understand OS fundamentals	
10	Unit I	System Programs	File management utilities	Lecture + PPT	Understand OS fundamentals	
11	Unit II	Process Concepts	Process states and PCB	Lecture + Chalkboard	Understand process management	
12	Unit II	Operations on Processes	Creation and termination	Lecture + Chalkboard	Understand process management	
13	Unit II	IPC	Shared memory and message passing	Lecture + Chalkboard	Understand process management	
14	Unit II	Process Scheduling	Scheduling concepts	Lecture + Chalkboard	Understand process management	
15	Unit II	Process Scheduling	FCFS, SJF	Lecture + Chalkboard	Understand process management	
16	Unit II	Process Scheduling	Priority, Round Robin	Lecture + Chalkboard	Understand process management	
17	Unit II	Multithreading	Thread concepts	Lecture + Chalkboard	Understand process management	
18	Unit II	Multithreading	Models and benefits	Lecture + Chalkboard	Understand process management	

19		Performance Test-1				
20	Unit III	Memory Allocation	Contiguous and non-contiguous	Lecture + PPT	Understand memory management	
21	Unit III	Swapping	Concept	Lecture + PPT	Understand memory management	
22	Unit III	Paging	Paging and page table	Lecture + PPT	Understand memory management	
23	Unit III	Segmentation	Segmentation	Lecture + PPT	Understand memory management	
24	Unit III	Virtual Memory	Demand paging	Lecture + PPT	Understand memory management	
25	Unit III	Faults	Page fault, segmentation fault	Lecture + PPT	Understand memory management	
26	Unit IV	File Concept	Attributes and operations	Lecture + Chalkboard	Understand file systems	
27	Unit IV	Access Methods	Sequential, direct, indexed	Lecture + Chalkboard	Understand file systems	
28	Unit IV	Directory Structure	Tree and graph	Lecture + Chalkboard	Understand file systems	
29	Unit IV	File Sharing & Protection	Permissions	Lecture + Chalkboard	Understand file systems	
30	Unit IV	File System Implementation	Allocation methods	Lecture + Chalkboard	Understand file systems	
31	Unit IV	Free Space Management	Bit map, linked list	Lecture + Chalkboard	Understand file systems	
32	Unit IV	File System Types	FAT, NTFS, ext	Lecture + Chalkboard	Understand file systems	
33		Performance Test-2				
34	Unit V	Mass Storage	Overview	Lecture + PPT	Understand I/O system	
35	Unit V	Disk Structure	Physical structure	Lecture + PPT	Understand I/O system	
36	Unit V	Disk Scheduling	FCFS, SSTF	Lecture + PPT	Understand I/O system	
37	Unit V	Disk Scheduling	SCAN, C-SCAN	Lecture + PPT	Understand I/O system	
38	Unit V	RAID	RAID 0, 1, 5	Lecture + PPT	Understand I/O system	
39	Unit VI	Deadlock	Concept and conditions	Lecture + Chalkboard	Understand deadlocks	

40	Unit VI	Deadlock Prevention	Banker's algorithm	Lecture + Chalkboard	Understand deadlocks	
41	Unit VI	Detection & Recovery	Methods	Lecture + Chalkboard	Understand deadlocks	
42	Unit VII	Authentication	User authentication	Lecture + PPT	Understand OS security	
43	Unit VII	Access Control	Access rights	Lecture + PPT	Understand OS security	
44	Unit VII	System Logs	Audit logs	Lecture + PPT	Understand OS security	
45		Previous Year Q&A Discussions				

Signature of faculty

Signature, HOD i/c