



OS SYLLABUS

CME 3rd Sem(code:303)



SYLLABUS**Subject : Operating Systems****Marks of FA : 20****Subject Code : C.A-303****Marks of SA : 80****Periods/Week : 04****Total No. of Periods : 60**

S.No.	Major Topics	No. of Periods	CO's Mapped
1.	Introduction to Operating System	12	CO1
2.	Process Management	12	CO2, CO6
3.	Synchronization and Deadlocks	12	CO3, CO6
4.	Memory Management	12	CO4, CO6
5.	Disk Scheduling and File Management	12	CO5, CO6
	Total	60	

LEARNING OUTCOMES**CHAPTER-1**

- 1.0 Introduction to operating systems
- 1.1 Define an operating system
- 1.2 Discuss history of operating system
- 1.3 Discuss about various types of operating systems
- 1.4 Distinguish spooling and buffering
- 1.5 Explain the concepts multiprogramming and timesharing
- 1.6 Differentiate between distributed and real time systems
- 1.7 Describe multiprocessor systems
- 1.8 Describe the operating system components
- 1.9 Discuss operating system services
- 1.10 Define system call with an example
- 1.11 List and explain different types of system calls
- 1.12 Define single user, multi user operating system structure

CHAPTER-2

- 2.0 Process management
- 2.1 Define process and process control block
- 2.2 Explain process state diagram
- 2.3 Describe process creation and termination
- 2.4 Discuss the relation between processes
- 2.5 Define Thread and describe multithreading
- 2.6 Explain scheduling concepts
- 2.7 Describe scheduling queues and schedulers
- 2.8 Explain CPU scheduling and scheduling criteria
- 2.9 Explain various scheduling algorithms
 - 2.9.1 FCFS 2.9.2 SJF
 - 2.9.3 Round Robin 2.9.4 Priority
 - 2.9.5 Multilevel Scheduling

CHAPTER-3

- 3.0 Synchronization & Deadlocks
- 3.1 Define Process synchronization
- 3.2 Describe semaphores
- 3.3 Explain inter process communication
- 3.4 Define Deadlock
- 3.5 State the necessary conditions for arising deadlocks
- 3.6 State various techniques for deadlock prevention
- 3.7 Discuss Deadlock avoidance and detection
- 3.8 Describe the process of recovering from deadlock

CHAPTER-4

- 4.0 Memory management
- 4.1 Discuss Memory Hierarchy
- 4.2 Describe briefly address binding, dynamic loading, dynamic linking
- 4.3 Define overlays

- 4.4 Describe briefly on swapping
- 4.5 Explain single partition allocation
- 4.6 Explain multiple partition allocation
- 4.7 Explain the concept of fragmentation
- 4.8 Explain paging concept
- 4.9 Explain how logical address is translated into physical address
- 4.10 Explain segmentation and segmentation with paging
- 4.11 Define and explain virtual memory techniques
- 4.12 Describe demand paging
- 4.13 Describe page replacement
- 4.14 Discuss on page replacement algorithms
 - 4.14.1 *FIFO*
 - 4.14.2 *LRU*
 - 4.14.3 *Optimal*
- 4.15 Explain the concept of thrashing
- 4.16 Explain working set model and page fault frequency

CHAPTER-5

- 5.0 Disk scheduling and File management
- 5.1 List and define various disk performance parameters like Capacity, Latency time, Seek Time, transfer rate, Access time, reliability, and average transfer time.
- 5.2 Calculate Latency time, Seek Time, transfer rate, transfer time with numerical examples on disk structure.
- 5.3 Disk allocation methods.
- 5.4 Disk scheduling policies
 - 5.2.1 *FIFO*
 - 5.2.2 *SSTF*
 - 5.2.3 *SCAN methods*
- 5.5 Define file management
- 5.6 List and explain various file operations

- 5.7 List and explain various access methods
- 5.8 List and explain various allocation methods
- 5.9 List and explain directory structure
- 5.10 Explain disk organization and structure

MODEL BLUE PRINT

S.No.	Chapter/ Unit Title	No. of periods	Weightage Allocated	Marks Wise Distribution of Weightage				Question Wise Distribution of Weightage				COs Mapped
				R	U	Ap	An	R	U	Ap	An	
1.	Introduction to Operating system	12	14	6	8			2	1			CO1
2.	Process management	12	14	6	8			2	1			CO2
3.	Synchronization & Deadlocks	12	24	3	3	8	*	1	1	1	*	CO3
4.	Memory management	12	14	6	8			2	1			CO4
5.	Disk scheduling and File management	12	14	3	1 1		*	1	2		*	CO5
	Total	60	70 + 10 *	24	38	8	10 *	8	6	1	1	

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