Syllabus

Unit-1	INTRODUCTION	Contact Hours:15
Introduction to the Operating System	Introduction to Operating Systems, Operating System Structure, Main Functions and characteristics of Operating Systems, Types of Operating Systems, System calls, Types of system calls, System programs.	
Process Management	Process Concept, Process Control Block, Process Scheduling, Threads, CPU Scheduling : Preemptive/ Non Preemptive Scheduling, Scheduling Criteria, Scheduling Algorithms, inter-process communication, remote procedure calls, Process Synchronization	
Deadlocks	Deadlock characterization and conditions for deadlock, deadlock prevention, Deadlock avoidance-safe state, resource allocation graph algorithm, Banker's algorithms-Safety algorithm, Deadlock detection, Recovery from deadlock.	
Unit-2	**MEMORY AND DEVICE MANAGEMENT**	**Contact Hours:15**
Memory Management	Address binding, logical versus physical address space, dynamic loading, Swapping, contiguous memory allocation, Fragmentation, Paging, Segmentation, Segmentation with Paging, Virtual Memory Concept, Demand Paging, Page Replacement, Page Replacement Algorithms	
Device Management	Disk Structure, Disk formatting, Disk Scheduling Algorithms, RAID structure-RAID levels, problems with RAID.	
File Management	File Concepts, Access Methods, Directory Structure, Allocation Methods, Free Space Management.	
Unit-3	**SECURITY AND TYPES OF OS**	**Contact Hours:15**
System Protection and Security	Goals, principles and domain of protection, Access matrix, implementation of access matrix, the security problem, program threats, system and network threats.	
Distributed and Network Operating Systems	Overview: Topology, connection strategy, network operating system types: Peer to Peer & Client server, Distributed message passing.	

Text Books:

1. Galvin, Peter B., Silberchatz, A., "Operating System Concepts", Addison Wesley, 8th Edition.
2. Flynn, "Operating Systems", Cengage Learning.
3. Dhamdhere, D.M., "Operating System: A Concept Based Approach", Tata Mc-Graw-Hill.

Reference Books:

1. Madnick , Stuart E., Donovan, John J. " *Operating System*", McGrawHill.
2. Stalling, William, "*Operating Systems*", Pearson Education, Fifth Edition.

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