

Operating System Imp Topics

Syllabus:

Sr No	Module	Detailed Contents	Hours
1	Introduction to System Software & operating System	Introduction to System Software & operating System Overview of all system softwares: Compiler, Assembler, Linker, Loader, Operating system, OS services and Components, Types <u>Types of OS</u> -Batch, multiprocessing, multitasking, timesharing, Distributed OS, Real time OS, virtual machines, System Calls, types of System calls, Buffering, Spooling (*** *) short notes	5
2	Process and Thread Management	Process and Thread Management: - Concept of process and threads, <u>Process states</u> , Process management, Context switching, <u>Interaction between processes and OS</u> , (*** *) Multithreading, CPU scheduling algorithms, multiprocessor scheduling algorithms, <u>Real time scheduling algorithms</u> (***) (numerical ***)	10
3	Concurrency Control	Concurrency Control: Concurrency and Race Conditions, Mutual exclusion requirements , Software and hardware solutions, <u>Semaphores</u> , <u>Monitors</u> , <u>Classical IPC problems</u> (*** *) and solutions, <u>Deadlock</u>, Characterization, Detection, Recovery, Avoidance and Prevention <u>Banquets</u> (*** *)	8
4	Memory Management	Memory Management: Memory partitioning, Swapping, <u>Paging</u> , <u>Segmentation</u> , <u>Virtual memory</u> , Overlays, Demand paging, Performance of Demand paging, Virtual memory concepts, <u>Page replacement algorithms</u> , Allocation algorithms	9
5	Mass Storage Structure	Mass Storage Structure: Secondary-Storage Structure, (AA *) Disk structure, Disk scheduling, <u>Disk management</u>, Swap-space management, Disk reliability, Stable storage implementation, Introduction to clock, <u>Clock hardware</u>, (A*) Clock software (A*)	9
6	File systems	File systems: File concept, File support, <u>Access methods</u> , (*** *) Allocation methods, Directory systems, File protection, Free space management	9
7	Protection & Security	Protection & Security: Protection- Goals of protection, Domain of protection, <u>Access matrix</u> , Implementation of <u>access matrix</u> , Revocation of access rights <u>Security</u> -]The security problem, Authentication, One-Time passwords, Threats	4
8	Case Study	Case Study : Study of different Operating, Systems(Linux, Windows, Android OS, iOS)	5

Short notes

Page replacement numerical (***)

numerical (***)