Operating Systems

UNIT - I

Introduction to OS, Objectives of OS, Functions of OS - Process Management, Device Management, Memory Management, Information Management (04). Types of operating systems: Batch System, Multiprogramming System, Timesharing System, Multiprocessing System, Parallel System, Distributed Operating System, Real-time System and Embedded System (06).
Lectures: 10

UNIT - II

Process Management: Process Concept, Life Cycle of Process, Process Schedulers, CPU Scheduling Criteria, Preemptive and Non-Preemptive Scheduling, Scheduling Algorithms: FCFS, SJF, SRTF, RR, Priority Scheduling (06). Deadlock: The Critical-Section Problem, Semaphores, Resource allocation graph, Introduction: Characterization, Deadlock Necessary conditions, Deadlock prevention, Deadlock Avoidance (Banker's Algorithm), Safe state condition, Deadlock Detection and Recovery (06).
Lectures: 12

UNIT - III

Memory Management: Characteristics, Logical and Physical Address space, Swapping, Fixed Partitioned and Variable Partitioned Memory Models, Fragmentation: Internal and External (06). Placement Algorithms: First Fit, Next Fit, Best Fit, Worst Fit. Virtual Memory Concept, Demand paging, Logical to Physical Mapping, Page Fault and Page replacement algorithms: FIFO, LRU, OPR (06).
Lectures: 12

UNIT - IV

File System: File concept, File operations, Types of Files, File Access methods, Directory Structure, File-System Implementation: File system structures, Directory Implementation, Allocation methods: Contiguous, Linked, Indexed (06). Disk Management: Disk Structure & Scheduling Methods, Free Space Management, Disk management Algorithms FCFS, SSTF, SCAN, LOOK, C-SCAN, C-LOOK (05).
Lectures: 11