OPERATING SYSTEM

Course Objectives:

To understand the main components of an OS & their functions.
To study the process management and scheduling.
To understand various issues in Inter Process Communication (IPC) and the role of OS in IPC.
To understand the concepts and implementation Memory management policies and virtual memory.
To understand the working of an OS as a resource manager, file system manager, process manager, memory manager and I/O manager and methods used to implement the different parts of OS. To understand the concept of file organization and access mechanism.

Detailed Syllabus

Unit- 1

Introduction to Operating system, Functions of Operating System, Classification of Operating systems: Batch, Interactive, Time sharing, Real Time System, Multiprocessor Systems, Multiuser Systems. Operating System Components, Operating System services.

Unit- 2

Process, Process states, Process Transition Diagram, Process Control Block (PCB), CPU Scheduling: Objectives of Scheduling, Types of Scheduler, Scheduling types, Scheduling Criteria, Scheduling Algorithms: FCFS, SJF, SRT, Priority, Round Robin.

Unit- 3

Deadlock: System model, Necessary Condition for Deadlock, Resource Allocation Graph, Recovery from deadlock.

Unit- 4

Memory Management: Logical Address, Physical Address, Memory Fragmentation, Paging, Introduction to Virtual memory, Page replacement algorithms: FIFO, LRU, Thrashing.

Unit- 5

I/O Management and Disk Scheduling: I/O devices, I/O buffering, Disk scheduling: FCFS, SSTF, C-SCAN, C-LOOK.