

## **Paper-III : Operating systems**

### **UNIT - I**

Introduction to Operating Systems: What is an operating system? Operating system's role: user view, System View. Operating System structure , Operating System Operations. Operating System services, System calls, Type of system calls, system programs, system structure, virtual machines.

### **UNIT - II**

Process Management : Process concept, Process state, Process control block, Process scheduling: Scheduling Queues, Schedulers , context Switch .Operations on processes :Process creation, Process termination , Cooperating processes, Inter-process communication..

CPU Scheduling: Basic Concepts, scheduling criteria, scheduling algorithms: FCFS, SJF, Priority Scheduling , Round Robin scheduling, Algorithm evaluation.

### **UNIT - III**

Process Synchronization: The critical section problem, synchronization hardware, semaphores, classical problems of synchronization, monitors.

Deadlocks :Deadlock characterization, Methods for handling deadlocks, Deadlock prevention, Deadlock avoidance, Deadlock detection, Recovery from deadlock.

### **UNIT - IV**

Memory Management: Swapping, contiguous memory allocation, paging, Structure of the Page table: Hierarchical Paging , Hashed Page tables , Inverted Page tables.

Virtual Memory Management : Demand paging, Process creation, Page replacement, Allocation of frames, Thrashing.

### **UNIT - V**

Storage Management : File concept, File Attributes , File Operations , File types , file structure , Internal file structure .

Access method : Sequential access , Direct access. Directory structure, Directory overview.

File-System Implementation: File-system implementation, Directory implementation, Allocation methods.

### **Recommended Books :**

- 1. Operating System Concepts :- Silberschatz G.G.**