

**B.C.A. Part I Semester I**  
**Paper V**  
**OPERATING SYSTEMS**

**UNIT - I:**

Structure of Operating System, Operating System functions, Characteristics of Modern OS. **Process Management:** Process states, Creation, Termination, Operations on Process, Concurrent process, Processes Threads, Multithreading, Micro Kernels  
**CPU Scheduling:** Schedulers, Scheduling Methodology, CPU Scheduling Algorithm: FCFS, SJF, RR, Priority Scheduling.

**UNIT – II:**

Performance comparison : Deterministic Modeling , Queuing analysis, Simulators.  
**Deadlock and Starvation:** Resource Allocation Graph, Conditions for Dead Lock, Dead Lock Prevention, Dead Lock Detection, Recovery from Deadlock.

**UNIT - III:**

**Memory Management:** Logical Vs. Physical Address Space, Swapping, Memory Management Requirement, Dynamic Loading and Dynamic Linking, Memory Allocation Method: Single Partition allocation, Multiple Partitions, Compaction, paging, segmentation, Segmentation with paging. Protection.

**UNIT - IV:**

**I/O Management:** I/O hardware, I/O Buffering, Disk I/O, Raid, Disk Cache. **File Management:** File Management system, File Accessing Methods, File Directories, File Allocation Methods, File Space Management, Disk Space Management, Record blocking. **Protection Mechanisms:** Cryptography, Digital Signature, User Authentication.

**Reference Books:**

1. Operating Systems by P. Balakrishna Prasad [Scitech Publication]
2. Operating System Concept : Silbershaz (Addision Education)
3. Operating Systems - H.M. Deitel - Addision Wesley.
4. Operating Systems- John J. Donoven.
5. Operating System : A.S.Godbole (TMH)
6. Modern Operating Systems : Tenenenbaum (Pearson Education)
7. Operating System : Peterson.