ADVANCE OPERATING SYSTEM

Unit 1

Operating system structures : operating system service – user and operating system interface-system call-system service-linkers and loader-operating system design and implementation-operating system-structure-**process management**-process concept-process scheduling- operation on process-interprocess communication-ipc in shared memory system-ipc in message passing system-examples of ipc system.

Unit 2

Threads and concurrency: overview –multicore programming-multithreading models-thread libraries-implicit threading-threading issues-operating system examples-cpu scheduling-basic concept-scheduling algorithms-thread cpu scheduling –multi processor scheduling- real time cpu scheduling –operating system examples-algorithm evaluation.

Unit 3

Synchronization tools: background-the critical section problem-peterson's solution-hardware support for synchronization-mutex locks-semaphores-synchronization examples-classical problems of synchronization-synchronization within the kernel-posix Synchronization-deadlock: system model-deadlock in multithread applications-deadlock characterization-methods for handling deadlocks-deadlocks preventions-deadlock avoidance- deadlock detection-recovery from deadlock.

Unit 4

Main memory: background –contiguous memory allocation- paging-structure of the page table-swapping-virtual memory: background –demand paging- copy –on-write-page replacement-allocaton of frames –thrashing- memory compression.

Unit 5

Mass-storage structure: overview of mass storage structure-hdd scheduling-nvm scheduling-error detection and correction-storage device management- i/o system: i/o hardware-application i/o interface.

Text Books:

1. Abraham Silberschatz Peter B. Galvin, G. Gagne, "Operating System Concepts", Sixth Edition, Addison Wesley Publishing Co., 2003.

Reference Books:

1. Operating systems - Internals and Design Principles, W. Stallings, 6th Edition, Pearson
2. Operating System - Willam-Stallings Fourth Edition, Pearson Education, 2003.
3. Operating Systems – H.M. Deitel, P. J. Deitel, D. R. Choffnes, 3 rd Edition, Pearson