UNIT-I: Introduction and Process Management:

Operating System Functionalities, Types of Operating Systems, User Operating System Interface, System calls, System Boot. Process Concept: Overview, Threads. Process Scheduling - Uniprocessor scheduling algorithms, Multiprocessor and Real-time scheduling algorithms.

UNIT-II: Memory Management:

Background, Swapping, Contiguous Memory Allocation, Paging, Segmentation. Virtual Memory Management: Demand Paging, Page replacement algorithms, Thrashing, Allocating Kernel Memory.

UNIT-III: Process Synchronization:

Inter Process Communication, Process Synchronization - Peterson's Solution, Bakery Algorithm, Semaphores, Critical Section, Monitors. Classical problems of synchronization. Deadlocks: Deadlock prevention, deadlock avoidance and Deadlock Detection and Recovery - Bankers Algorithm.

UNIT-IV:Storage and I/O Management:

File System-Basic Concepts, File System Structure, File System Mounting, Directory Structure, Allocation Methods, Free Space Management. I/O

Management: Disk Structure, RAID Structure, Disk Scheduling, Protection :Goals of Protection, Principles of Protection, Domain of Protection, Access Matrix.

UNIT-V

Case Study: Windows 7 : Design Principles, System Components, Terminal Services & Fast User Switching, File System, Networking, Programmer Interface. Case Study: The Linux System : Design Principles, Kernel Modules, Process Management, Scheduling, Memory Management, File System, Input Output, Inter Process Communication, Network Structure, Security.

Learning Resources:

1. Operating System Concepts - Operating System Concepts, Ninth Edition, Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, John Wiley & Sons Inc.
2. Modern Operating Systems- Andrew S Tanenbaum, Prentice Hall
3. Operating Systems - Operating System: Internals and Design Principles , William Stallings
4. Operating Systems - System Programming and Operating Systmes D M Dhamdhere, Tata Mc Graw Hill
5. Operating Systems - Operating Systems: A Modern Perspective, Gary Nutt, Addison Wesley
6. Operating Systems - Operating Systems, Achyut S Godbole, Tata Mc Graw Hill
7. Design of the Unix Operating System - Maurice Bach, Prentice Hall.
8. https://nptel.ac.in/courses/106108101/
9. https://www.classcentral.com/course/udacity-introduction-to-operating-systems-3419