

OPERATING SYSTEMS

UNIT-I

INTRODUCTION

What operating system do? – Computer system organization – Computer system architecture – Single processor systems – Multiple processor systems – Clustered Systems – Operating system structure – Operating System operations – Special purposes systems-Real time embedded systems – Multimedia systems and handheld systems – Operating system services-System calls – System programs – Virtual machines – Operating system design and implementation.

UNIT-II

PROCESS MANAGEMENT

Process concept – Process scheduling – Operation on process – Cooperating process and inter – Process communication.

Threads: Overview – Multithreading models.

Process synchronization: The Critical section problem – Synchronization hardware – Semaphores – Classical problems of synchronization.

Deadlocks: System model – Deadlock characterization – Methods for handling deadlocks – Deadlock prevention – Deadlock avoidance – Deadlock detection – Recovery from deadlock.

UNIT-III

CPU SCHEDULING

Basic concepts – Scheduling criteria – Scheduling algorithms. Memory management: Background – Swapping – Contiguous memory allocation – Paging – Segmentation – Segmentation with paging. Virtual memory: Demand paging – Page Replacement – Thrashing – Allocation of frames.

UNIT-IV

FILE SYSTEMS

File concepts – Access methods – Directory structure – File system – Mounting – File sharing – Protection. File system structure – File system implementation – Allocation methods – Free space management – Directory implementation – Recovery.

UNIT-V

SECONDARY STORAGE MANAGEMENT

Disk structure – Disk scheduling – Disk management – Swap space management. Case study: Linux system – Components of linux systems – Process management – Process scheduling – Security.

TEXT BOOKS:

1. Silberschatz, Galvin, Gagne, “Operating System Concepts”, 7th edition, John Wiley & Sons, Inc., 2006.

REFERENCE BOOKS:

1. D.M.Dhamdhere, “Operating Systems: A concept-Based approach:, 2nd edition, Tata McGraw Hill,2006.
2. Charles Crowley, “Operating Systems: A Design oriented approach”, Tata McGraw Hill, 199.
3. Andrew S. Tanenbaum, “Modern Operating Systems”, Pearson Education, 3rd Edition.
4. William Stallings, “Operating Systems”, Pearson Education, 6th edition.