



Marwadi University

Bachelor of Computer Application

Semester IV

Subject Code : 05BC0403

Subject Name: Operating System (OS)

Learning Objectives:

- To describe the overall structure and components of operating systems.
- To explain the key concepts and mechanisms of process management, memory management, storage management, security, and protection of operating systems.
- To apply the principles and methods learned by performing practical tasks.

Prerequisites:

- Fundamentals of Computer Organization

Course Content:

Unit	Course Content	Hours
1	Operating System Overview: Introduction to Operating system, Role of Operating System as resource manager, function of kernel and shell, operating system structures, views of an operating system.	07
2	Process Management and Thread Management Process, PCB, Process Control Structure Thread Control Structure, Process vs Threads, Thread Synchronization	07
3	Memory Management Types of Partitioning, Simple Paging and Segmentation Need of Virtual Memory and Page Replacement Algorithms.	07
4	Scheduling Uni-processor Scheduling: Types of Scheduling, Scheduling, Algorithms	09
5	I/O Management and Disk Scheduling: I/O Devices, Organization of the I/O Function, OS Design Issues, I/O Buffering, Disk Scheduling, RAID, Disk cache.	07
6	File Management: Overview, Introduction to File System, File Organization, File Directories, File Sharing, Record Blocking, Secondary Storage Management.	06
7	Case Studies: LINUX / UNIX Operating System and Windows based operating systems	05

Text Book(s):

1. Stalling W, "Operating Systems", 6th edition, Prentice Hall India.

Reference Book(s):

1. Silberschatz, A., Peter B. Galvin and Greg Gagne, "Operating System Principles", Wiley-Indian Edition, 9th Ed., 2009
2. Tanenbaum A.S., "Modern Operating Systems", 4th Edition, PHI, 2001
3. Gary Nutt, "Operating Systems Concepts", Pearson Education Ltd. 3rd Edition