MSC (CA&IT) - Semester: IV

(Effective from year 2024-25)

Course Code:	CAIT-403	**Course Title:**	Operating Systems
Course Credits:	**04**	**Hour of Teaching/Week:**	04
Internal Assessment Marks:	**50**	**External Exam Marks:**	50
Exam Duration	**2 Hrs**		

Unit	Contents
1	Introduction, Uses of OS, Functions of OS, Objective of OS, Types of OS, To choose best OS, Example of OS. Batch Processing Operating System (BPOS), Features of BPOS, Working, Advantages and Disadvantages of BPOS, Multiprogramming OS, Features of Multiprogramming, Advantages and disadvantages of multiprogramming, Working of Multiprogramming OS, Time Sharing System, Advantages and disadvantages of Time Sharing Systems, Network Operating Systems, Real Time Operating Systems.
2.	Process Management: Introduction, Process Table and Process Control Block (PCB), Operations on Process, Process Schedulers in Operating Systems, Intern Process Communication, Context Switching in Operating System, Preemptive and Non-Preemptive Scheduling, CPU Scheduling and its Criteria, CPU Scheduling Algorithms: FCFS, SJF, LJF, Priority, RR
3.	Deadlock and Deadlock Handling Methods: Introduction and Example, Conditions of Deadlock, Bankers' Algorithm, Deadlock detection in distributed systems, Handling Deadlocks, Deadlock Prevention and Avoidance, Deadlock detection and recovery, Deadlock ignorance, Recovery from deadlock.
4.	Memory Management in OS: Main Memory, Logical and Physical Address Space, Static and Dynamic Loading, Static and Dynamic Linking, Swapping, Logical Vs Physical Address Space, Contigous Memory Space, Memory Allocation – First Fit, Best Fit and Worst Fit, Fragmentation – Internal and External, Paging and Page replacement algorithm.

References

1. Andrew S. Tanenbaum: Operating System deign & Implementation, Prentice Hall International

2. James Peterson and Abraham Silberschatz: Operating System Concept, Addition Wesley