| Operating Systems | | | | C Programming and Data |

	Operating Systems	**3**	**0**	**2**	**Structures**

Course Objective: 1. To provide an understanding of the fundamental concepts of operating systems.
 2. To provide insight into the functional modules of operating systems.
 3. To study the concepts underlying the design and implementation of operating systems.

S. NO	Course Outcomes (CO)
CO1	Abilty to understand the basic concepts and functions of operating systems.
CO2	Abilty to understand Processes, Threads, and Deadlocks
CO3	Abilty to analyze Scheduling algorithms
CO4	Abilty to analyze memory management schemes.
CO5	Abilty to understand I/O management and File systems.

S. NO	Contents	Contact Hours
UNIT 1	Introduction: Operating system and function, Evolution of operating system, Batch, Interactive, Time Sharing and Real Time System, System protection. Operating System Structure: System Components, System structure, Operating System Services	6
UNIT 2	Concurrent Processes: Process concept, Principle of Concurrency, Producer Consumer Problem, Critical Section problem, Semaphores, Classical problems in Concurrency, Inter Process Communication, Process Generation, Process Scheduling. CPU Scheduling: Scheduling Concept, Performance Criteria of Scheduling Algorithm, Evolution, Multiprocessor Scheduling.	10
UNIT 3	Deadlock: System Model, Deadlock Characterization, Prevention, Avoidance and Detection, Recovery from deadlock combined approach.	8
UNIT 4	Memory Management: Base machine, Resident monitor, Multiprogramming with fixed partition, Multiprogramming with variable partition, Multiple base register, Paging, Segmentation, Virtual memory concept, Demand paging, Performance, Paged replacement algorithms, Allocation of frames, Thrashing, Cache memory organization, Impact on performance.	10
UNIT 5	I/O Management & Disk Scheduling: I/O devices and organization of I/O function, I/O Buffering, DISK I/O, Operating System Design Issues. File System: File Concept, File Organization and Access Mechanism, File Directories, File Sharing, Implementation Issues	8
	TOTAL	**42**