

Semester I

Operating Systems			
Course Code	MMC104	CIE Marks	50
Teaching Hours/Week (L:P:SDA/T)	2:0:1	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	03
Course Learning objectives: ■ Explain the need and services of the operating system ■ Explore how the operating system handles processes and manages memory.			
Module1			
Introduction to Operating Systems, System Structure What operating systems do, Operating System Operations, Computing Environments, Operating System Services, System Calls, Types of System Calls, System Programs, Operating System Structure, System Boot Process Concept Process Concept, Process Scheduling, Interprocess Communication			
Module2			
Process Scheduling Basic Concepts, Scheduling Criteria, Scheduling Algorithms Synchronization Background, The Critical Section Problem, Mutex Locks, Semaphores, Classic Problems of Synchronization: Readers-Writers Problem, Dining Philosophers Problem using Semaphores			
Module3			
Deadlocks: System model, Deadlock Characterization, Methods for handling deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock			
Module4			
Memory Management Strategies Basic Hardware, Swapping, Contiguous Memory Allocation, Segmentation, Paging, Virtual Memory Management Background, Demand Paging, Page Replacement			
Module5			
File System File concept, Access methods, Directory overview, Implementing File System Allocation methods, Free Space Management			

Text Books	
1.	Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: Operating Systems Principles, 8 th Edition, Wiley – India.
Reference Books	
1.	D M Dhamdhere: Operating Systems – A Concept Based Approach, 2 nd Edition, Tata McGraw – Hill, 2002.
2.	Harvey M Deital: Operating Systems, 3 rd Edition, Addison Wesley, 1990.