Course Code:	C	A	P	D	2	1	3	Course Title:	**PRINCIPLES OF O S**

WEIGHTAGE	
CA	**ETE (Th.)**
20	**80**

COURSE CONTENTS:

Sr. No.	Topics
1.	**Introduction:** Operating system Meaning, Supervisor & User mode, Meaning of System Calls & Kernel, Operating system operations & Functions, Types of OS: Simple batch systems, multiprogramming, Multiprocessing, Multitasking, Parallel, Distributed, RTOS etc.
2.	**Process management**: Process Concept, Life Cycle, PCB, Process Scheduling, Cooperating Processes, Overview of Inter process Communication.
3.	**Process Management:** Concept of Thread, Multithreading, Context Switching, scheduling criteria, Type of Scheduling: Long term, Short term & Medium term scheduling, scheduling algorithms, Overview of thread scheduling,
4.	**Process Management:** Concept of critical section, Ways to handle critical section problem, semaphores, Deadlock concept & handling
5.	**Memory Management**: Logical & Physical Address space, Swapping, Contiguous memory allocation, paging, segmentation, Virtual memory, demand paging, Overview of Page replacement, Thrashing
6.	**File Management:** File concepts, access methods, directory structure, file sharing, protection, Allocation methods, Free space Mgt., Directory Implementation.
7.	**Secondary Storage Structure:** disk structure, Disk Scheduling, disk management, swap-space management, Overview of RAID structure.
8.	**System Protection:** Goals of protection, Access matrix and its implementation, Access control and revocation of access rights, capability-based systems
9.	**System Security:** Security problem, program threats, system and network threats, cryptography as a security tools, user authentication, implementing security defenses, firewalling to protect systems and networks.
10.	Case study of Windows OS or Linux or any other OS

TEXT BOOK:

Silberschatz, Gagne & Galvin, "Operating System Concepts", John Wiley & Sons, Seventh Edition or Latest.

ADDITIONAL READINGS:

1. A.S. Tanenbaum : Operating System : Design and Implementation, Prentice Hall of India.
2. Milankovic, Operating system, Tata Macgraw Hill, New Delhi.
3. Stalling, W., "Operating Systems", 2nd edition, Prentice Hall.
4. Deitel H. M., "Operating Systems, 2nd edition, Addison Wesley.