Course Code	Course Title	H	C	I	E	T
17U3DMC7	OPERATING SYSTEMS	4	4	25	75	100

Objectives:

- To impart the knowledge of system software.
- Learning the concept and operations of operating systems.

Unit - I: Introduction **(12 hours)**

Operating system basics – Computer System organization – Computer system architecture – operating system structure – Operating system operations – Distributed systems – Open source operating systems. **System structures**: Operating system services – User operating system interface – System calls – Operating system structure.

Unit - II: Process Management **(12 hours)**

Process concepts – Process scheduling – Inter-process communication. **Multithreaded programming:** Overview – Multithreading models. **Process Scheduling:** Basic concepts – Scheduling criteria – Scheduling algorithms.

Unit - III: Memory Management **(12 hours)**

Memory management strategies – Background – Swapping – Contiguous memory allocation – Paging – Structure of the page table – Segmentation. **Virtual memory management:** Background – Demand paging – Copy-on-write – Page replacement – Thrashing.

Unit - IV: Storage Management **(12 hours)**

File system: File concepts – Access methods – File sharing – Protection. **Secondary storage structures:** Overview of Mass-storage structure – Disk structure – Disk scheduling – Disk management - RAID structure. **I/O systems:** Overview – I/O hardware.

Unit - V: Process Coordination **(12 hours)**

Synchronization: Background – The Critical-Section problem – Semaphores. **Deadlocks:** System model – Deadlock characterization – Methods for handling deadlocks – Deadlock prevention – Deadlock avoidance.

Chapters:

Unit – I : 1.1 -1.5, 1.10, 1.13, 2.1-2.3, 2.7.

Unit – II : 3.1, 3.2, 3.4, 4.1, 4.2, 5.1-5.3.

Unit – III : 8.1-8.6, 9.1-9.4, 9.6.

Unit – IV : 10.1, 10.2, 10.5, 10.6, 12.1, 12.2, 12.4, 12.5, 12.7, 13.1, 13.2.

Unit – V : 6.1, 6.2, 6.5, 7.1-7.5.

Text Book:

Abraham Silberschatz, Peter B.Galvin, Greg Gagne - "Operating System Concepts " – Wiley Student Edition – 8th Edition - 2010.

Reference Books:

1. D.M.Damdhere - "Operating systems – A concept based approach" – 2nd Edition – TMH.
2. William Stalings – " Operating system, Internals and design principles" – 2008 – PHI.