

**THIRD YEAR – SEMESTER – V**  
**PAPER V: OPERATING SYSTEM CONCEPTS**

Credits : 4

Hours : 75

*Objective : To acquire knowledge about the Operating System concepts and to know about the UNIX operating system.*

**UNIT – I**

Introduction: Views- Goals – Types of System – OS Structure – Components – Services – Process Management: Process – Process Scheduling – Cooperating process – Threads – Inter Process Communication. CPU Scheduling: CPU Schedulers – Scheduling Criteria – Scheduling Algorithms.

**UNIT – II**

Process Synchronization: Critical-Section Problem – Synchronization Hardware – Semaphores – Classical Problems of Synchronization. Deadlocks: Characterization – Methods for Handling Deadlocks – Deadlock Prevention - Avoidance – Detection - Recovery.

**UNIT – III**

Memory Management: Address Binding – Dynamic Loading and Linking – Overlays – Logical and Physical Address Space – Contiguous Allocation – Internal and External Fragmentation. Non-Contiguous Allocation: Paging and Segmentation Schemes – Implementation – Fragmentation.

**UNIT – IV**

Virtual Memory: Demand Paging – Page Replacement – Page Replacement Algorithms. File System: File Concepts – Access Methods – Directory Structures – File System Structures – Allocation Methods – Free Space Management.

**UNIT – V**

I/O System: Overview – I/O Hardware – Application I/O Interface – Transforming I/O Requests to Hardware Operations – Protection – Goals – Domain – Access matrix – The Security Problem – Authentication – Unix System: Features of UNIX - Basic commands.

**TEXT BOOK**

1. A. Silberschatz P.B.Galvin, Gange., *Operating System Concepts*, 6<sup>th</sup> Edition, John Wiley and Sons, 2002.

**REFERENCES**

1. H.M. Deitel, *An Introduction to Operating System*, Second Edition, Addition Wesley, 1990.