



SYLLABUS

Course Title	Operating System	
Course Code	MIT201	
Course Credit	Theory(Hrs)	: 4
	Practical(Hrs)	: 2
	Tutorial(Hrs)	: 0
	Credits	: 5
Course Objective		
<p>To provide working knowledge of Operating System which is required in effective operation and use of computer system? To provide awareness of Various Scheduling Techniques and memory management. Provide the knowledge of how to deal with dead lock situations.</p>		
Detailed Syllabus		
Sr. No.	Name of chapter & details	Hours Allotted
Section – I		
1	Computer & Operating System Overview Basic Elements of System, Instruction Cycle, Concept of Interrupt, The Memory Hierarchy, Concept of Cache, Importance of OS : Objectives & Functions, Evolution of OS, Types of OS, Characteristics of Modern OS	05
2	Process & Threads OS Services for process management, Process States, Process Description, Process Control, Concept of Thread, Multithreading,	06

3	Concurrency and Mutual Exclusion Principles of Concurrency, Mutual Exclusion, Semaphores, Monitors, Concept of Deadlock, Deadlock Prevention, Deadlock Detection, Deadlock Avoidance, Dining Philosophers Problem,	08
4	Scheduling Types of Processor Scheduling, Selection Criteria for Scheduling Algorithms, Different Scheduling Algorithms, Thread Scheduling	07
Section – II		
5	Memory Management Requirements of Memory Management, Different Partitioning of Memory, Buddy System, Simple Paging & Segmentation, Locality and Concept of Virtual Memory, VM Based Paging, Segmentation, Combined paging and segmentation, OS Software : Fetch Policy, Replacement Policies, Resident Set Management, Cleaning Policy	10
6	I/O Management & Disk Scheduling I/O Devices, Organization of I/O Function, I/O Buffering, Disk Scheduling : Performance Parameter, Disk Scheduling Policies, Concept of RAID	05
7	File Management File System, File Structure, File Management System, File Organization and access, Directories, File Sharing, Secondary Storage Management,	05
8	Distributed System Client/Server Computing, Middleware, Distributed Message Passing, Remote Procedure Calls, Clusters : Configuration & Methods	05

Instructional Method and Pedagogy:

- Lectures will be conducted on the basis of Classroom Response Systems with the use of multi-media projector, black board, OHP etc.
- Faculties provides a structured, guided context for students working collaboratively to solve problems based on Coached Problem Solving
- Assignments on the basis of course contents given at the end of each unit and will be evaluated at regular interval
- Tutorials and experiments basis on the course contents are given and evaluated at regular interval

Course Learning Outcomes:

On the completion of the course, students will be able to:

- **Understand and appreciate** the design and implementation aspects of an operating system
- **Understand** how to manage storage management concepts and how to implement page replacement algorithms as well as disk scheduling algorithms

Text books:

- Title: Operating Systems: Internals and Design Principles, Pearson Education
Authors: William Stalling

Reference Books:

- Title: Modern Operating System, Pearson Education
Authors: Andrew S. Tanenbaum
- Title: Operating System Concepts, Wiley India Edition
Authors: Abraham Silberschatz & Galvin
- Title: Operating System, McGraw Hill
Authors: D. M. Dhamdhare
- Title: Understanding Operating System, Course Technology, Cengage Learning
Authors: Flynn I. M.

Additional Resources

- <http://www.cs.nyu.edu/courses>
- [http:// en.wikipedia.org/wiki/Operating System](http://en.wikipedia.org/wiki/Operating_System)
- <http://www.computerhope.com/os.htm>
- <http://www.pearsonhighered.com/tanenbaum>