Paper Code : OSM:301

Paper Name : Operating System

Teaching Hours (Per Week)		**Examination Scheme**		
TH. (hours)	Pr. (hours)	Internal	External	Total
		Th. (marks)	Th. (marks)	100 (marks)
4		30	70	

Lectures = 68 Hours

Objective:

An operating system is a set of software that manages computer hardware resources and provides common services for computer programs. By the end of this course we will be well versed about process management, memory management and file systems.

Detailed Syllabus

UNIT I **15 Hours**

Introduction to operating systems, Operating-System Structure: System Component, Operating-System Services, System Calls, System Programs, System Structure, Virtual Machines, System Design and Implementation, System generation.

UNIT II **15 Hours**

Concept of a process, processes scheduling, Operation on Processes, cooperating processes, Inter process Communication, Threads Overview, Multithreading models, CPU scheduling; Basic Concept, Scheduling Criteria, Scheduling Algorithms, Multiple- Processor communication, Real time Scheduling.

UNIT III **15 Hours**

Introduction to memory management, various memory management schemes like paging, segmentation, demand paging, virtual memory, page replacement algorithms, thrashing and load control, dealing with large page tables, two level paging, staring memory. .

UNIT IV **15 Hours**

Process hierarchy, critical section problem, semaphore concept, study of classical co-ordination problem, Meaning of deadlocks, condition for deadlocks to occur, deadlock prevention, deadlock avoidance, deadlock detection, deadlock recovery, sequence of approach to deadlock handling, two phase locking, stagnation, introduction to concurrent processing, precedence graphs.

UNIT V **08 Hours**

File concept, Access methods, Directory Structure, File System Mounting, file Sharing, Protection, File System Structure, File-System Implemenation, Directory Implementation.

RECOMMENDED BOOKS:

1. Silverschwatz, “Operating System Concepts”, Willey
2. Milenekovic, “Operating System Concepts”, McGraw Hill
3. Dietel, “An introduction to operating system”, Addision Wesley
4. Tannenbaum, “Operating system design and implementation”, Phi.
5. M Singhal and NG Sivaratri, “Advanced Concepts in Operating Systems”, Tata McGraw Hill Inc., 2001
6. William Stalling “Operating System”
7. Stuart E. Madnick. John J. Donovan, “Operating System”, Tata McGraw Hill