CS8493 OPERATING SYSTEMS L T P C 3 0 0 3

UNIT I OPERATING SYSTEMS OVERVIEW 9

Computer System Overview-Basic Elements, Instruction Execution, Interrupts, Memory Hierarchy, Cache Memory, Direct Memory Access, Multiprocessor and Multicore Organization. Operating system overview-objectives and functions, Evolution of Operating System- Computer System Organization Operating System Structure and Operations- System Calls, System Programs, OS Generation and System Boot.

UNIT II PROCESS MANAGEMENT 9

Processes- Process Concept, Process Scheduling, Operations on Processes, Inter process Communication; Threads- Overview, Multicore Programming, Multithreading Models Windows 7 -Thread and SMP Management. Process Synchronization – Critical Section Problem, Mutex Locks, Semaphores, Monitors; CPU Scheduling and Deadlocks.

UNIT III STORAGE MANAGEMENT 9

Main Memory-Contiguous Memory Allocation, Segmentation, Paging, 32- and 64-bit architecture Examples; Virtual Memory- Demand Paging, Page Replacement, Allocation, Thrashing; Allocating Kernel Memory, OS Examples.

UNIT IV I/O SYSTEMS 9

Mass Storage Structure- Overview, Disk Scheduling and Management; File System Storage-File Concepts, Directory and Disk Structure, Sharing and Protection; File System Implementation- File System Structure, Directory Structure, Allocation Methods, Free Space Management, I/O Systems.

UNIT V CASE STUDY 9

Linux System- Basic Concepts; System Administration-Requirements for Linux System Administrator, setting up a LINUX Multifunction Server, Domain Name System, Setting Up Local Network Services; Virtualization- Basic Concepts, Setting Up Xen, VMware on Linux Host and Adding Guest OS.

TEXT BOOK:

1. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, 9thEdition, John Wiley and Sons Inc., 2012.

REFERENCES:

1. William Stallings, “Operating Systems – Internals and Design Principles”, 7th Edition, Prentice Hall,2011.
2. Andrew S. Tanenbaum, “Modern Operating Systems”, Second Edition, Addison Wesley, 2001.
3. Charles Crowley, “Operating Systems: A Design-Oriented Approach”, Tata McGraw HillEducation”, 1996. McGraw-Hill Education, 2007.