

		MAHENDRA ENGINEERING COLLEGE (Autonomous Institution, Affiliated to Anna University, Chennai) Mahendhirapuri, Mallasamudram, Namakkal DT -637 503.				
Programme	B.E. / B.Tech	Programme Code :		Regulation		2015
Department	COMPUTER SCIENCE AND ENGINEERING			Semester		-HI
Course Code	Course Name	Periods / Week		Credit	Maximum Marks	
		L	T	P	C	
15CS14303	OPERATING SYSTEMS (Common to CSE / IT)	3	0	0	3	100
Objective	To enable students to <ul style="list-style-type: none"> • Study the basic concepts and functions of operating systems. • Understand the structure and functions of OS. • Learn about Processes, Threads and Scheduling algorithms. • Understand the principles of concurrency and Deadlocks. • Learn various memory management schemes. • Study I/O management and File systems. • Learn the basics of Linux system and perform administrative tasks on Linux Servers. 					
Unit - I	OPERATING SYSTEMS OVERVIEW				Periods	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				Periods	9
Processes-Process Concept, Process Scheduling, Operations on Processes, Interprocess 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				Periods	9
Main Memory-Contiguous Memory Allocation, Segmentation, Paging, 32 and 64 bit architecture Examples; Virtual Memory- Demand Paging, Page Replacement, Allocation, Thrashing; Allocation Kernel Memory, OS Examples.						
Unit - IV	I/O SYSTEMS				Periods	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	Periods	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.			
Total Periods			45
TEXT BOOKS:			
1	Abraham Silberschatz, Peter Baer Galvin and Greg Gagne. "Operating System Concepts", 9th Edition, John Wiley and Sons Inc., 2012		
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 Hill Education, 1996		
4	D M Dhamdhere, "Operating Systems: A Concept-Based Approach", Second Edition, Tata McGraw-Hill Education, 2007		
5	http://nptel.ac.in/syllabus/syllabus.php?subjectId=106102132		

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