
	SRI VIDYA COLLEGE OF ENGINEERING & TECHNOLOGY COURSE PLAN (THEORY)	
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ACADEMIC YEAR: 2018-19

Subject Code	CS8493	L	P	T	C							
Subject Title	Operating Systems	3	0	0	3							
Year / Dept / Sem	II / CSE / 04	Regulation Year		2017								
Faculty Name / Desg / Dept	Mr.N.Venkatesan, AP/CSE											
Course Prerequisite	<ul style="list-style-type: none"> Basics of computers Knowledge in Computer Organization & Architecture 											
Attach the copy of syllabus												
Course Objectives (CO)	<p>CO1: To understand the basic concepts and functions of operating systems.</p> <p>CO2: To understand Processes, Threads and Deadlocks</p> <p>CO3: To analyze Scheduling algorithms</p> <p>CO4: To analyze memory management schemes.</p> <p>CO5: To understand I/O management and File systems.</p> <p>CO6: To be familiar with the basics of Linux system and Mobile OS like iOS and Android.</p>											
Expected Course Outcomes (ECO)	<p>At the end of the course, the students should be able to:</p> <p>ECO1: Analyze various scheduling algorithms.</p> <p>ECO2: Understand deadlock, prevention and avoidance algorithms.</p> <p>ECO3: Compare and contrast various memory management schemes.</p> <p>ECO4: Understand the functionality of file systems.</p> <p>ECO5: Perform administrative tasks on Linux Servers.</p> <p>ECO6: Compare iOS and Android Operating Systems</p>											
Mapping of CO & PO(Specify the PO's)												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	B,3	H,2	-	-	-	-	-	-	-	-	-	-
CO2	C,2	-	E,3	-	-	-	-	E,1	H,2	B,3	-	-
CO3	-	-	B,3	-	-	-	-	-	-	-	-	-
CO4	H,1	-	-	-	E,2	-	-	-	-	-	-	-
CO5	-	-	E,3	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	C,3	-	-	-	-	-	-	-
Bridging the Curriculum Gap (Additional Topics beyond syllabus/Seminars/Assignments)	<p>BCG1: Linux Game design in C</p> <p>BCG2: Real world applications of Linux OS</p> <p>BCG3: Mind mapping of Windows and Linux</p> <p>BCG4: Mobile OS - iOS and Android</p>											
Related Website URLs	<p>W1: www.webopedia.com/TERM/O/operating_system.html</p> <p>W2: https://www.tutorialspoint.com/operatingsystem/os_overview.htm</p> <p>W3: www.dictionary.com/browse/operating--system</p>											
Related Video Course Materials (min. 3 no.s)	<p>V1: https://www.youtube.com/watch?v=nw7oHM9szXQ</p> <p>V2: https://www.youtube.com/watch?v=OWsyrnOBsJs</p> <p>V3: https://www.youtube.com/watch?v=pXBwtULVRrE</p>											

S.No	Topic Name	Book – P. No	Teaching Aids	No of hrs	Cumulative hrs
UNIT I OPERATING SYSTEMS OVERVIEW					
1.	Operating system overview	T1,Ch 1: 3-7	BB	1	1
2.	Computer System Overview-Basic Elements, Instruction Execution, Interrupts	T1,Ch 1: 7-9	BB	1	2
3.	Memory Hierarchy, Cache Memory, Direct Memory Access	T1,Ch 1: 9-12	BB	1	3
4.	Multiprocessor and Multicore Organization, Computer System Organization, Evolution of OS	T1,Ch 1: 12-19	BB	1	4
5.	Computer System Organization Operating System Structure and Operations	T1,Ch 1: 19-31 Ch 2: 78-86	BB	2	6
6.	System Calls	T1,Ch 2: 62-73	BB	2	8
7.	System Programs	T1,Ch 2: 74-75	BB	1	9
8.	OS Generation and System Boot	T1,Ch 2: 91-93	BB	1	10
UNIT II PROCESS MANAGEMENT					
1.	Processes-Process Concept , Process Scheduling, Operations on Processes	T1,Ch 3:105-110, Ch 3:110-122	BB	1	11
2.	Inter process Communication	T1,Ch 3:122-147	BB	1	12
3.	CPU Scheduling - Scheduling criteria, Scheduling algorithms, Multiple processor scheduling, Real time scheduling;	T1,Ch 6:261-289	PPT	2	14
4.	Threads- Overview, Multi core Programming, Multithreading Models, Threading issues	T1,Ch 4:163-169, Ch 4 :169171	BB	2	16
5.	Process Synchronization- Critical Section Problem	T1,Ch 5:203-207	BB	1	17
6.	Synchronization hardware, Mutex Locks	T1,Ch 5:212-213	BB	1	18
7.	Semaphores, Classic problems of synchronization, Critical regions Monitors	T1,Ch 5:213-232	OHP	2	20
8.	Deadlock - System model, Deadlock characterization, Methods for handling deadlocks, Deadlock prevention	T1,Ch 7:315-327	BB	1	22
9.	Deadlock avoidance, Deadlock detection, Recovery from deadlock.	T1,Ch 7:327-339	BB	1	23
UNIT III STORAGE MANAGEMENT					
1.	Main Memory- Swapping, Contiguous Memory Allocation	T1,Ch 8:351-364,	BB	1	24
2.	Paging, Segmentation , Segmentation with paging, 32 and 64 bit architecture, Examples	T1, Ch 8:364-366 Ch 8:366-390	PPT	2	26
3.	Virtual Memory- Demand Paging	T1,Ch 9:397-407	BB	1	27
4.	Page Replacement	T1,Ch 9:409-421	BB	2	29

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5.	Allocation, Thrashing	T1,Ch 9:421-430	PPT	1	30
6.	Allocating Kernel Memory	T1,Ch 9:436-439	PPT	1	31
7.	OS Examples	T1,Ch 9:439-448	BB	1	32

UNIT IV I/O SYSTEMS

1.	Mass Storage Structure- Overview	T1,Ch10:467-472	BB	1	33
2.	Disk Scheduling and Management swap space management	T1,Ch10:472-482	OHP	2	35
3.	File - System Interface - File concept, Access methods	T1,Ch11:503-515	BB	1	36
4.	Directory Structure, Directory organization	T1,Ch11:515-526	BB	1	37
5.	File system mounting, File Sharing and Protection;	T1,Ch11:528-538	BB	1	38
6.	File System Implementation- File System Structure	T1,Ch12:543-553	BB	1	39
7.	Directory implementation, Allocation Methods	T1,Ch12:553-561	BB	1	40
8.	Free Space Management, Efficiency and Performance, Recovery	T1,Ch12:561-564	BB	1	41
9.	I/O Systems, I/O Hardware, Application I/O interface, Kernel I/O subsystem, Streams, Performance.	T1,Ch13:587-618	BB	2	43

UNIT V CASE STUDY

1.	Linux System - Design Principles, Kernel Modules, Process Management	Notes	PPT	2	45
2.	Scheduling, Memory Management, Input-Output Management		BB	2	47
3.	File System, Inter-process Communication		BB	2	49
4.	Mobile OS - iOS and Android		PPT	1	50
5.	Architecture and SDK Framework, Media Layer		PPT	2	52
6.	Services Layer, Core OS Layer		PPT	1	53

Signature	<i>N. Venkatesan</i>	Approved by	<i>Dr. P. Murugeswari</i>
Name	N. Venkatesan		Dr. P. Murugeswari
Designation	Assistant Professor / CSE		Professor & HOD / CSE
Signed date	23-10-18		

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