



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B.TECH. (CSE)		
Course Title	OPERATING SYSTEMS		
Course Code	CSPC26	No. of Credits	3
Course Code of Pre-requisite subject(s)	CSPC24		
Session	January 2019	Section (if, applicable)	A
Name of Faculty	Dr. S. Mary Saira Bhanu	Department	CSE
Official Email	msb@nitt.edu	Telephone No.	9442970006
Name of Course Coordinator(s) (if, applicable)	Not Applicable		
Official E-mail		Telephone No.	
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in Senate)			
<p>Unit – I Operating Systems –Definition- Types- Functions -Abstract view of OS- System Structures – System Calls- Virtual Machines –Process Concepts –Threads –Multithreading</p> <p>Unit – II Process Scheduling- Process Co-ordination –Synchronization –Semaphores –Monitors Hardware Synchronization –Deadlocks –Methods for Handling Deadlocks</p> <p>Unit – III Memory Management Strategies –Contiguous and Non-Contiguous allocation –Virtual memory Management –Demand Paging- Page Placement and Replacement Policies</p> <p>Unit – IV File System –Basic concepts - File System design and Implementation –Case Study: Linux File Systems - Mass Storage Structure –Disk Scheduling –Disk Management –I/O Systems-System Protection and Security.</p> <p>Unit – V Distributed Systems –Distributed operating systems –Distributed file systems –Distributed Synchronization.</p> <p>Text Book</p> <p>1. Silberschatz, Galvin, Gagne, "Operating System Concepts", John Wiley and Sons, 9th edition, 2013</p> <p>Reference Books</p> <p>1. William Stallings, "Operating Systems –Internals and Design Principles", 8/E, Pearson Publications,</p>			



2014	
2. Andrew S. Tanenbaum, "Modern Operating Systems", 4/E, Pearson Publications, 2014	
COURSE OBJECTIVES	
<ul style="list-style-type: none"> • To provide knowledge about the services rendered by operating systems • To provide a detailed discussion of the various memory management techniques • To discuss the various file-system design and implementation issues • To discuss how the protection domains, help to achieve security in a system 	
MAPPING OF COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Ability to comprehend the techniques used to implement the process manager	PO1-PO7
2. Ability to comprehend virtual memory abstractions in operating systems	PO1-PO7
3. Ability to design and develop file system interfaces, etc.	PO1-PO7

COURSE PLAN – PART II			
COURSE OVERVIEW			
<p>This course enables the students to know the importance of Operating System (OS) and understand how OS services are implemented and used. The course focuses on the basic conceptual issues in the design of OS and introduces the basic facilities provided in modern operating systems. Also the models of OS from the Uniprocessor to Multiprocessor perspectives by considering the purpose, structure and functions of operating systems are dealt in this course.</p>			
COURSE TEACHING AND LEARNING ACTIVITIES			(Add more rows)
S.No.	Week	Topic	Mode of Delivery
1	1	Operating Systems, Definition, OS Components, OS Types, OS operations, Abstract view of OS	C&T, PPT



2	2	System Structures, System Calls, Virtual Machines	C&T, PPT
3	3	Process Concepts- Threads, multithreading, Process Scheduling,	C&T, PPT
4	4	Inter process communication, Coordination and synchronization Semaphores, Monitors	C&T, PPT
5	5	Deadlocks, Deadlock characteristics, Methods for handling deadlocks Case study : Linux and Windows	C&T, PPT
6	6	Memory management, Contiguous and Non Contiguous allocation - Memory management – Partition – Static and dynamic,	C&T, PPT
7	7	Segmentation- Paging memory Management	C&T, PPT
8	8	Virtual memory management, Allocation of frames, Page Replacement Case study: Linux and Windows	C&T, PPT
9	9	File System Basics- File system interfaces – File System implementation	C&T, PPT
10	10	Mass Storage Management, Disk Scheduling, RAID, Swap Space management	C&T, PPT
11	11	I/O Management – I/O interfaces – Streams	C&T, PPT
12	12	Protection and Security – Access Control mechanisms –Program Threats – Use of Cryptography	C&T, PPT
13	13	Distributed systems –Distributed Operating systems – Design issues	C&T, PPT



14	14	Distributed Synchronization – Distributed File System	C&T, PPT	
COURSE ASSESSMENT METHODS (shall range from 4 to 6)				
S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Written Test	February II Week	1 hour	20
2	Assignment	March II week		10
3	Written Test	April I week	1 hour	20
CPA	Compensation Assessment*	April IV Week	1 hour	20
4	Final Assessment *	May I week	3 hours	50
*mandatory; refer to guidelines on page 4				
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)				
Student Feedback Form collected at the end of the semester through MIS				
COURSE POLICY (including compensation assessment to be specified)				
Students should not be absent for assessments. If the reason for absence is genuine, the student can appear for compensation assessment. The medical certificate/on duty certificate should be submitted within one week after rejoining. The portions for the compensation assessment will be Assessment 1 and Assessment 3 portions.				
<u>ATTENDANCE POLICY</u> (A uniform attendance policy as specified below shall be followed)				
<ul style="list-style-type: none"> ➤ At least 75% attendance in each course is mandatory. ➤ A maximum of 10% shall be allowed under On Duty (OD) category. 				
Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.				
<u>ACADEMIC DISHONESTY & PLAGIARISM</u>				
<ul style="list-style-type: none"> ➤ Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty. ➤ Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark. 				

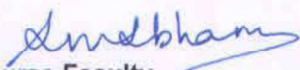


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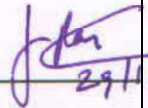
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

FOR APPROVAL


Course Faculty _____


CC- Chairperson _____

HOD  29/11/15