SWARNANDHRA
COLLEGE OF ENGINEEERING AND TECHNOLGY
(AUTONOMOUS)

SEETHARAMPURAM, NARSAPUR-534280, WG- DT, AP

DEPARTMENT OF BACHELOR OF COMPUTER APPLICATIONS(Honours)

TEACHING PLAN

Course Code	Course Title	Year/Sem	Branch	Contact hr/week	Academic Year
24BC3T01	Operating System	II/III	BCA(Honours)	6	2025-2026

Course Objectives:

- Understand the basic concepts and principles of operating systems, including process management, memory management, file systems, and Protection
- Make use of process scheduling algorithms and synchronization techniques to achieve better performance of a computer system.
- Illustrate different conditions for deadlock and their possible solutions.

Course Outcome(co's) :At the end of the course, student will be able to:

CO No.	Course Outcome	Knowledge Level (K)
CO1	Understand the fundamental concepts and types of Operating Systems, their structure, services, and the role of system calls.	K1
CO2	Explain and analyze the process management concepts including process states, scheduling algorithms, and interprocess communication.	K3
CO3	Demonstrate knowledge of memory management techniques such as paging, virtual memory, and page replacement algorithms.	K2
CO4	Apply synchronization techniques and evaluate solutions to concurrency issues, including deadlock detection and recovery strategies.	K4
CO5	Understand file system structures, access methods, and evaluate file system implementation techniques including allocation and disk scheduling.	K3

Week No	Outcome	Blooms Level		Topic / Activity	Text Books	Contact Hours	Delivery Method
				UNIT-I			
1,2	Understand the fundamental concepts and types of Operating Systems, their structure, services, and the role of system calls.		1.1	Introduction to Operating System concepts.	T1	2	Chalk & Board, PPT, Interactive White boarding
			1.2	Types of Operating Systems.	T1	2	
			1.3	Operating Systems Concepts.	T1	1	
			1.4	Evalution of Operating Systems	T1	1	
			1.5	Operating System Services.	T1	2	
			1.6	Structure of OS.	T1	2	
			1.7	Introduction to System Call..	T1	1	
			1.8	Systemcall Types.	T1	2	
				UNIT-II			
3,4	Explain and analyze the process management concepts including process states, scheduling algorithms, and inter process communication.	K3	2.1	Process Management: Process concept, The Process	T1	2	Chalk & Board, PPT , Interactive White boarding
			2.2	Process State Diagram, Process Control block	T1	3	
			2.3	Process Scheduling: Scheduling Queues,Schedulers.	T1	3	
			2.4	Operations on Processes, Inter Process Communication,Threading Issues	T1	4	
			2.5	Scheduling - Basic Concepts, Scheduling Criteria	T1	2	

			2.6	Scheduling Algorithms.	T1	2	
Mid I Exam							
UNIT-III							
5, 6	Demonstrate knowledge of memory management techniques such as paging, virtual memory, and page replacement algorithms.	K4	3.1	Memory Management: Swapping, Contiguous Memory Allocation	T1	3	Chalk & Board, PPT , Interactive White boarding
			3.2	Paging, Structure of the page Table.	T1	2	
			3.3	Virtual Memory Management: Virtual Memory	T1	2	
			3.4	Demand Paging	T1	2	
			3.5	Page Replacement Algoriyhms.	T1	2	
UNIT-IV							
7,8	Apply synchronization techniques and evaluate solutions to concurrency issues, including deadlock detection and recovery strategies.	K4	4.1	Concurrency: Process Synchronization, The critical Section Problem.	T1	3	Chalk & Board, PPT , Interactive White boarding
			4.2	Synchronization Hard ware, Semaphores	T1	2	
			4.3	Classic Problems of Synchronization, Monitors, Synchronization Examples.	T1	3	
			4.4	Principles of Deadlock: System Model.	T1	2	
			4.5	Deadlock Characterization Deadlock Prevention,	T1	2	
			4.6	Detection and Avoidance, Recovery from	T1	2	

				Deadlock			
UNIT-V							
9, 10	Understand file system structures, access methods, and evaluate file system implementation techniques including allocation and disk scheduling.		5.1	File System Interface: Concept of a File, Access Methods.	T1	3	Chalk & Board, PPT , Interactive Whiteboarding
			5.2	Directory Structure, File system Mounting.	T1	2	
			5.3	File sharing, Protection.	T1	2	
			5.4	File System Implementation, File System Structure	T1	3	
			5.5	Allocation Methods, Disk Scheduling	T1	3	
Mid II Exam							
Total No. of Classes						**67**	

Recommended Text Books for Reading:

Author(s)	Title	Publisher	Edition	Year
Abraham Silberschatz, Peter Baer Galvin, Greg Gagne	Operating System Concepts	John Wiley and Sons Inc.	9th Edition	2012
William Stallings	Operating Systems – Internals and Design Principles	Prentice Hall	7th Edition	2011

Reference Books:

Author(s)	Title	Publisher	Edition	Year
D.M. Dhamdhere	Operating Systems: A Concept Based Approach	McGraw-Hill	3rd Edition	2013

Faculty **Head of the Department** **Principal**