



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING - DATA SCIENCE

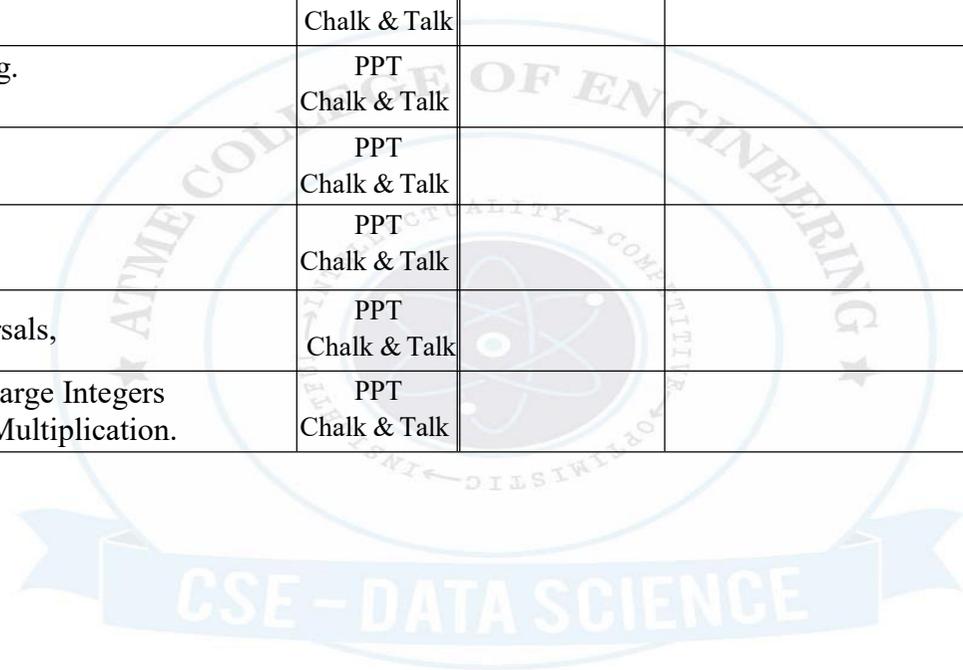
Lesson Plan & Work-done Diary for AY: 2025-26, EVEN Semester

Course with Code: Analysis & Design of Algorithms – BCS401				Faculty: Mrs. Madhu Nagaraj		Semester & Section: IV	
Class No	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks
MODULE-1							
1.		Bridge Course on C Programming and DS	PPT Chalk & Talk				
2.		INTRODUCTION: What is an Algorithm?, Fundamentals of Algorithmic Problem Solving.	PPT Chalk & Talk				
3.		Analysis Framework, Performance Analysis	PPT Chalk & Talk				
4.		Asymptotic Notations: Big-Oh , Omega notation (Ω), Theta notation (Θ)	PPT Chalk & Talk				
5.		Mathematical analysis of Non-Recursive Algorithms with Examples.	PPT Chalk & Talk				
6.		Mathematical analysis of Recursive Algorithms with Examples.	PPT Chalk & Talk				
7.		Brute force design technique: Selection sort, bubble sort	PPT Chalk & Talk				
8.		sequential search,string matching algorithm with complexity Analysis	PPT Chalk & Tal				



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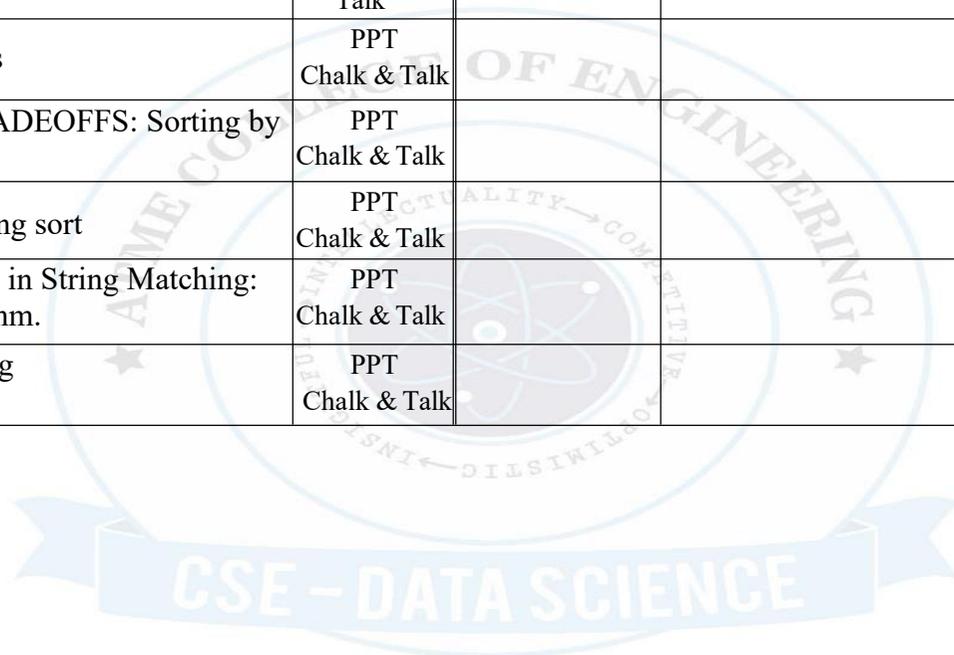
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MODULE-2							
9.		Exhaustive Search -Travelling Salesman problem	PPT Chalk & Talk				
10.		Exhaustive Search (Knapsack Problem).	PPT Chalk & Talk				
11.		Insertion Sort,	PPT Chalk & Talk				
12.		Topological Sorting.	PPT Chalk & Talk				
13.		Merge Sort,	PPT Chalk & Talk				
14.		Quick Sort,	PPT Chalk & Talk				
15.		Binary Tree Traversals,	PPT Chalk & Talk				
16.		Multiplication of Large Integers Strassen's Matrix Multiplication.	PPT Chalk & Talk				





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MODULE-3							
17.		TRANSFORM-AND-CONQUER: Balanced Search Trees,	PPT Chalk & Talk				
18.		Heaps and Heapsort.	PPT Chalk & Talk				
19.		Heapsort. 2-3 Trees	PPT Chalk & Talk				
20.		SPACE-TIME TRADEOFFS: Sorting by Counting:	PPT Chalk & Talk				
21.		Comparison counting sort	PPT Chalk & Talk				
22.		Input Enhancement in String Matching: Horspool's Algorithm.	PPT Chalk & Talk				
23.		QP Problems Solving	PPT Chalk & Talk				





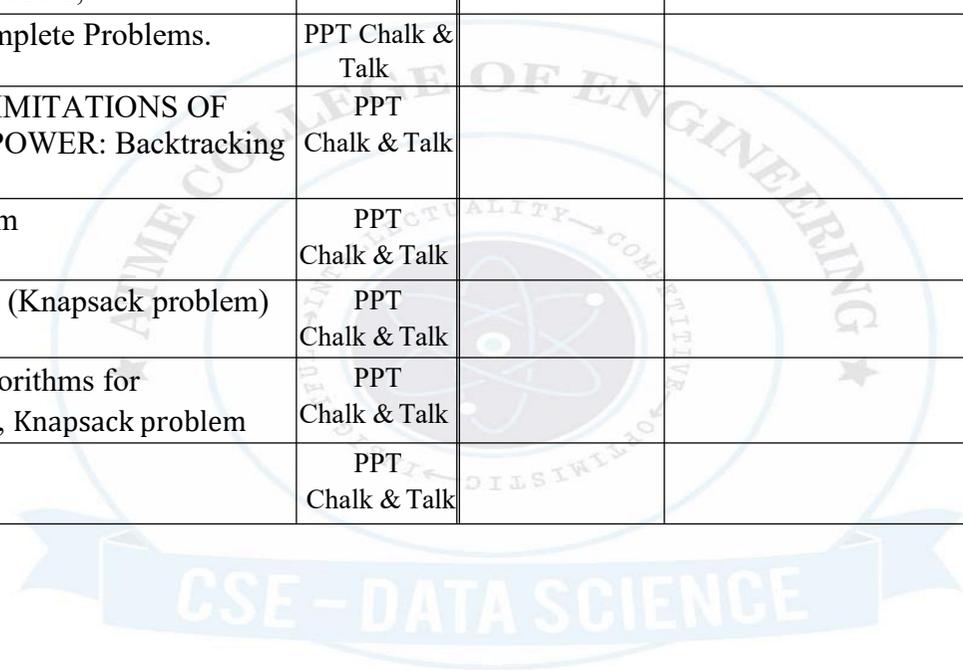
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MODULE-4							
24.		Dynamic Programming: General method with Three basic examples,	PPT Chalk & Talk				
25.		Three basic examples cntd	PPT Chalk & Talk				
26.		Three basic examples cntd	PPT Chalk & Talk				
27.		The Knapsack Problem and Memory Functions	PPT Chalk & Talk				
28.		Warshall's Algorithms.	PPT Chalk & Talk				
29.		Floyd's Algorithms	PPT Chalk & Talk				
30.		THE GREEDY METHOD: Prim's Algorithm	PPT Chalk & Talk				
31.		Kruskal's Algorithm	PPT Chalk & Talk				
32.		Dijkstra's Algorithm,	PPT Chalk & Talk				
33.		Huffman Trees and Codes.	PPT Chalk & Talk				



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MODULE-5							
34.		LIMITATIONS OF ALGORITHMIC POWER: Decision Trees,	PPT Chalk & Talk				
35.		P, NP, and NP-Complete Problems.	PPT Chalk & Talk				
36.		COPING WITH LIMITATIONS OF ALGORITHMIC POWER: Backtracking n-Queens problem,	PPT Chalk & Talk				
37.		Subset-sum problem	PPT Chalk & Talk				
38.		Branch-and-Bound (Knapsack problem)	PPT Chalk & Talk				
39.		Approximation algorithms for NP-Hard problems, Knapsack problem	PPT Chalk & Talk				
40.		Revision	PPT Chalk & Talk				





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	Activity	Planned	Actual	Remarks
1	Theory Classes	40		
2	Assignments/ Quizzes/ Self-study			
3	Tutorials/ Extra classes			
4	Internal Assessments			
5	ICT based Teaching (% of usage in Curriculum)			
Planning			Execution	
Faculty Signature:			Faculty Signature:	
HoD Signature:			HoD Signature:	

