Semester	Subject Code	Category	Lecture Hrs Theory Hrs		Practical		Credits		
			Per	Per	Per	Per	Per	Per	
			week	Sem	week	Sem	week	Sem	
	21CCS6D	Elective –							
VI		IV	5	75	5	75	0	0	3

DESIGN AND ANALYSIS OF ALGORITHM

COURSE OBJECTIVE

To learn and design the software using the concept of various algorithms using its characteristic and performance in Applications to be developed

To build a solid foundation of the most important fundamental subject in computer science.

Creative thinking is essential to algorithm design and mathematical acumen and programming skills.

COURSE OUTCOME

On Successful Completion of this course, students will enable

СО	CO Statement	Knowledge Level
Number		(K1-K4)
CO1	Explain about basic details of Algorithm.	K1
CO2	Describe about Divide and conquer paradigm concept with sorting techniques	K2
CO3	Synthesize new graph algorithms and algorithms that employ graph computations as key components, and analyze them.	K4
CO4	Implementing Backtracking paradigms in graph traversal.	К3
CO5	Design data structures techniques using bounding techniques.	K4

Knowledge Level – K1-Remember, K2- Understand, K3-Apply, K4-Analyze

MAPPING WITH PROGRAMME OUTCOME

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	М	L	М	L	S	М
CO2	М	М	М	М	L	М
CO3	S	М	S	М	S	L
CO4	М	S	L	М	L	М
CO5	М	S	S	М	L	М

S-Strong M-Medium L-Low

UNIT I – ANALYSIS OF ALGORITHM

Algorithm-Characteristics - Performance Analysis-Space & Time complexity - Asymptotic notations (Ω, θ, O)

UNIT II – DIVIDE & CONQUER

Divide & conquer - General method - Finding Maximum & Minimum - Merge Sort - Quick Sort -Greedy method - Knapsack problem - Job sequencing.

UNIT III – GRAPH & DYNAMIC PROGRAMMING 15 Hours

Dynamic programming - General method - Multi stage graph - Multi string editing - Traveling salesman problem.

UNIT IV – BACKTRACKING 14 Hours

Backtracking - General method - 8 Queen problem - Sum of subsets - Graph coloring

UNIT V – BRANCH & BOUND

Branch & Bound - Least cost search - Bounding problem - FIFO brand and bounding

Distribution of Marks: Theory: 75% Algorithms: 25%

TEXT BOOKS

S.No	Authors	Title	Publishers	Year of
				publication
1	Ellis Horowitz, artajSahni,	Fundamentals of	Galgotia	2005
	SanguthevarRajasekaran	Computer Algorithms	Publications	

15 Hours

16 Hours

15 Hours

REFERENCE BOOK

S.No	Authors	Title	Publishers	Year of publication
1	Coremen T.H.,Leiserson	Introduction to	PHI Education	1998
	C.E. and Rivest R.L	Algorithms		
2	AnanyLevitin,	Introduction to the	Pearson Education	2006
		Design and Analysis of		
		Algorithms		
3	A.V.Aho, J.E Hopcrof and	The Design and Analysis	Pearson Education	2006
	J.D.Ullman,	of Computer algorithms		
4	R. Panneerselvam	Design and Analysis of	PHI Learning Pvt Ltd	2016
		Algorithms		
5	Jon Kleinberg, Eva Tardos	Algorithm Design	Pearson Education	2006
6	Thomas H.Cormen, Carles	Introduction to	Prentice Hall	1990
	E.Leiserson, Ronald	algorithms		
	L.Rivest			
7	Amit Kumar and Sandeep	Design and Analysis of	Cambridge	2019
	Sen	Algorithms: A	University Press,	
		Contemporary	2019	
		Perspective		
8	Michael T. Goodrich	Algorithm Design:	Wiley India Pvt.	2006
		Foundation, Analysis	Limite	
		And Internet example		

WEB RESOURCES

- 1. http://www.tutorialspoint.com/hibernate/
- 2. https://javaee.github.io/tutorial/overview001.html

TEACHING METHODOLOGY

- \Box Class room teaching.
- Discussions.
- \Box Assignments.
- Demo using systems.
- Presentation using ppt.

SYLLABUS DESIGNER

- Mrs.G.SANGEETHA LAKSHMI, Assistant Professor & HOD, Dept of Computer Science & Applications
- Mrs.R BHUVANESHWARI, Assistant Prof, Dept of Computer Science & Applications