ELECTIVE - 1. DESIGN AND ANALYSIS OF ALGORITHM

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

COURSE OBJECTIVE

- 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 the successful completion of the course, students will be able to

CO	СО	Knowledge
Number	Statement	Level
		(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 Backtracting paradigms in graph traversal.	К3
C05	Design data structures techniques using bounding techniques.	K4

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

MAPPING WITH PROGRAM OUTCOME

	COS	PO1	PO2	PO3	PO4	PO5	P06
	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- Med	lium;	•	L-Low	

SYLLABUS

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 13 Hrs

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

UNIT IV – BACKTRACKIN G

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

12 Hrs

12 Hrs

11 Hrs

12 Hrs

Distribution of Marks: Theory 80% and problems and solutions: 20%

S.N	Authors	Title	Publisher	Year of
ο			S	Publication
1	EllisHorowitz,	Fundamentals	Galgo	2015
	Sartajshani,	of	tia	
	SanguthevarRajas	Compute	Public	
	e karan	r	ati	
		Algorith	ons	
		ms		
2	Thomes H.	Introduction	Prentice	1990
	Coreman, Cherles	to Algorithms	Hall	
	E.Leiserson,			
	Ronald Rivest			

TEXT BOOKS

REFERENCE BOOK

S.No	Authors	Title	Publishers	Year of Publication
1.	Coremen T.H.,Leiserson C.E. and Rivest R.L	Introduction to Algorithms	PHI Education	1998
2	AnanyLevitin	Introduction to the Design and Analysisof Algorithms	Pearson Education	2006
3	A.V.Aho, J.E Hopenfit d J.D.Ullman	The Design and Analysisof Computer algorithms	Pearson Education	2003
4	Ellis Horowitz,Sartaj Sahni and Sanguthevar Rajasekaran	Fundament als of Computer Algprithms	University Press	2008
5	S.Sridhar	Designand Analysisof Algorithm	Oxford University	2014
6	Shefali Singhal Neha Garg	Analysis and Design of Algorithm	BPB	2018

7	Michael T.Goodrich Robert Tamassia	Algorithma nd Design founadatiom	Willey	2001
8	Jiawei Hon and jai OER	Analysis of Algoritm	Pearson Education	2020

WEB RESOURCES

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

TEACHING METHODOLOGY

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

SYLLABUS DESIGNER

- 1. Mrs. G.SANGEETHA LAKSHMI , Assistant Professor and Head, Department of Computer Application
- 2. Mrs. LAKSHMI R, Assistant Professor, Department of Computer Application