

Recognized by AICTE, permanently affiliated to JNTUK Kakinada

Accredited by NAAC with 'A' Grade (2nd Cycle)

Seetharamapurm, Narsapur – 530280 (Andhra Pradesh)

## DEPARTMENT OF INFORMATION TECHNOLOGY TEACHING PLAN

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Cour Code	e	ourse Title	Semester	Branch	Contact Periods /Week	Academ Year	Date of
20IT6E	of Al	nd Analysi gorithms	s VI	IT	6		commencen
COURS	SE OUTCOM	ES			0	2022-202	23   12-12-2022
1	Analyze the developed	e asymptou	tic runtime cor rent algorithm	nplexity of a	lgorithms for	real world	problems
2	Identify the	optimal so	olutions by usi & conquer an	- incurious.		nalysis of	algorithm
3	Explain the	fundament	tals of Dynami	d greedy me	thod.	-	its applications
4	and bound n	nethod to s	olve problems	optimally wi	techniques li here advance	ke backtra d algorithn	cking and branc
5	Distinguish	the problem	ns and its com	1 .			ems and can
UNIT	Out Comes / Bloom's	Topics				objettis.	
	Level	No.	Acti	vity	Text Book/ Reference	Contac tHour	Delivery
		No.	Acti	vity o algorithms	Book/	tHour	Delivery Method
		No. 1.1 1.2	Acti Introduction t Process of des analysis of alg	o algorithms	Book/ Reference		Method
		No.  1.1  1.2  1.3	Acti Introduction to Process of designallysis of algorians Pseudo code for the expressing algorians	o algorithms sign and corithms or	Book/ Reference	tHour 1	Delivery Method Chalk & Board
I		No.  1.1  1.2  1.3  1.4	Action Introduction to Process of designally analysis of algorithms and Pseudo code from the Expressing algorithms and Performance Aspace complexity.	o algorithms sign and corithms or orithms analysis,	Book/ Reference T1	tHour 1	Chalk & Board
I	Level	No.  1.1  1.2  1.3  1.4  1.5	Action Introduction to Process of designally analysis of algorithms and Processing algorithms are processed analysis of algorithms and processing algorithms are processed analysis of algorithms.	o algorithms sign and corithms or orithms analysis, kity	Book/ Reference T1. T1	tHour 1	Method  Chalk & Board
I	Level	1.1 1.2 1.3 1.4 1.5 1.6 E	Action Introduction to Process of designally sis of algorithms of algori	o algorithms sign and corithms or orithms analysis, kity otations:	Book/ Reference T1. T1 T1 T1,R1	tHour 1	Chalk & Board  Power point presentations  Assignment
I	Level	1.1 1.2 1.3 1.4 1.5 1.6 E T 1.7 A	Action Introduction to Process of designally sis of algorithms of algori	o algorithms sign and corithms or orithms analysis, city ity otations: and Little obabilistic	Book/ Reference T1. T1 T1 T1,R1	tHour 1	Chalk & Board  Power point presentations



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Cours Code	Ĭ	ourse Title	Semester	Branch	Contact Periods	Academic Year	Date of
201T6E	Of Alg	nd Analysis	s VI	IT	/Week		commencemen
COURS	E OUTCOME	S			6	2022-2023	12-12-2022
1	Analyze the	asymptot	ic runtime cor ent algorithm	nplexity of alg	gorithms for	real world p	rohleme
2	Identify the	optimal so	lutions by us			nalysis of alo	Orithm
3	Explain the	fundament	als of Dynami	c Programmi	nod.		
4	Apply the se and bound m techniques fa	arch space	and optimiza	tion problem to optimally wh	techniques li ere advance	along with its ke backtrack d algorithm d	applications.
5	Distinguish the formulate son	he problem	s and its some				s and can
			- Totalis (	o abstract mat	thematical pr	roblems.	_
JNIT	Out Comes / Bloom's Level	Topics No.		pics/ ivity	Text Book/	Contac tHour	Delivery
	*	1.1	Introduction t	o algorithms	Reference T1	thour	Method

UNIT	Out Comes / Bloom's	Topics		Text		
	Level	No.	Activity	Book/ Reference	Contac tHour	Delivery Method
		1.1	Introduction to algorithms	TI.		Method
		1.2	Process of design and analysis of algorithms	T1	1	
		1.3	Pseudo code for expressing algorithms	TI		Chalk &
1	CO-1	1.4	Performance Analysis, Space complexity	T1,R1	-	Board Power poin
		1.5	Time complexity		- 1	presentation
			Asymptotic Notations:	T1	1	
	_	1.6	Omega notation	TI	1	Assignment
	II IIe		Theta notation and Little			Test
			Analysis Probabilistic	T1,R1	1	
		1.8	Disjoint Sets - disjoint set operations	T1,R1		



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### Seetharamapurm, Narsapur – 530280 (Andhra Pradesh)

		1.9	Union and Find algorithms	T1	1		
4		1.10	Spanning trees	T1	1		
Y		1.11	DFS and BFS	T1	Val. 1	-	
		1.12	bi-connected components	T1	1		
Content be	eyond syllabus	1.13	Mathematical analysis for	RI	1 .		
	T		Division 1	Total	13		
		2.1	Divide and conquer: Introduction	T1,T2	1		
		2.2	General method	T1,T2	1		
		2.3	Applications- Binary search	T1,T2	1	-	
		2.4	Quick sort	T1,T2	1		
		2.5	Merge sort	T1,T2	1	Chalk	
		2.6	Stassen's matrix Multiplication.	T1,T2	1	& Board	
П	CO – 2	2.7	Greedy method: Introduction	T1,T2	1		
		2.8	General method	T1	1	Power poin presentation	
		2.9	Applications-Job sequencing with deadlines	T1	1	Assignmen	
		2.10	0/1 knapsack problem	T1,T3	1	rissigninen	
		2.11	Minimum cost spanning trees	T1	1	Test	
		2.12	Single source shortest path problem	Ti	1		
Content bey	ond syllabus	2.13	Bellman Ford Algorithm	T1	1		
				Total	13	j.	
		3.1	Dynamic programming: Introduction	T1,R1	1		
		3.2	General method	T1,R1	1		
		3.3	Applications- Matrix chain multiplication	T1,R1	1		
	CO – 3	3.4		Matrix chain multiplication	T1,R1	1	Chalk
III		3.5	Optimal binary search trees	T1,R1	1	&	
-		3.6	Optimal binary search trees	T1,R1	1	Board	
	-	3.8	0/1 knapsack problem T1,1	T1,R1	1	Day	
		3.9	0/1 knapsack problem	T1,R1	- 1	Power point	
HIE			All pairs shortest path problem	T1,R1	1	presentations	
		3.10	All pairs shortest path problem	T1,R1	1	Assignment	

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#### Seetharamapurm, Narsapur – 530280 (Andhra Pradesh)

Text Box

Reference

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Faculty

		3.11	Travelling sales person problem	T1,R1	1	Test
		3.12	Travelling sales person problem	T1,R1	1	
		3.13	Reliability design	T1,R1	1	
Content be	eyond syllabus	3.14	Resource Allocation Problem	R1	1	
				Total	14	-
		4.1	Backtracking: Introduction	T1,T2	1	
		4.2	General method	T1,T2	1	
		4.3	Applications			1
		4.4	n-queen problem	T1,T2	1	1
		4.5	Sum of subsets problem	T1,T2	1	Chalk
		4.6	Graph coloring	T1,T3	- 1	
		4.7	Hamiltonian cycles	T1,T3	_ 1	Board
2		4.8	Branch and Bound: Introduction	T1	1	Power point
IV	CO - 4	4.9	General method	T1	1	presentations
**		4.10	Applications	T1	1	
		4.11	Travelling sales person problem	TI	1	Assignment
		4.12	Sales person problem	100		Test
		4.13	0/1 knapsack problem	T1	1	
		4.14	LC Branch and Bound solution	T1	1	
		4.15	Branch and Bound solution			
		4.16	FIFO Branch and Bound solution	T1	1	
Content be	yond syllabus	4.17	Job Sequencing with deadlines	T1	1	
				Total	17	
		5.1	NP Hard and NP Complete problems	T1,R1	1	
		5.2	Basic concepts	T1,R1	1	Chalk
X7	66 -	5.3	Non-deterministic Algorithms	T1,R1	1	& Board
v	CO-5	5.4	NP-Hard and NP- Complete classes	T1,R3	1 .	Power point presentations
		5.5	NP-Hard and NP- Complete problems	T1,R2	1	Assignment
		5.6	Cook's theorem.	T1,R1	1	Test
Content bey	ond syllabus	5.7	Approximation Algorithms & Randomized Algorithms	R4	1	. (3)
				Total	7	
		C	UMULATIVE PROPOSED		64	



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## Seetharamapurm, Narsapur – 530280 (Andhra Pradesh)

S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION Ellis Horowitz, SatraiSahni and Boise all
1	Universities Press 2012
2	Narasimha Karumanchi, Algorithm Decis, market
3	Narasimha Karumanchi, Algorithm Design Techniques, Career Monk, 2018.  T.H.Cormen, C.E.Leiserson, R.L.Rivest and C.Stein, Introduction to Algorithms, second edition, PHI Pvt. Ltd., 2016.
Reference	Books:
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Anany Levitin, Introduction to the Design and A. L.
1	Anany Levitin, Introduction to the Design and the Publication
2	Anany Levitin, Introduction to the Design and Analysis of Algorithms, PEA, 2018.  ParagHimanshu Dave, Himansu B Alachandra Dave, Design and Analysis of Algorithms.  Pearson Education, 2016.
3	R.C. I. Lee, S.S. Tseng R C Change and T. T.
4	Algorithms A strategic approach, McGraw Hill., 2017.
eb Detail	Aho, Ullman and Hopcroft, Design and Analysis of algorithms, Pearson education., 2016
1	https://www.javatpoint.com/daa-tutorial
2	https://lecturenotes.in/notes/17784-note-for-design-and-analysis-of-algorithm-daa-by-shekharesh-barik?reading=true
. 3	https://www.tutorialspoint.com/design_and_analysis_of_algorithms/index.htm
4	https://www.geeksforgeeks.org/fundamentals-of-algorithms/#AnalysisofAlgorithms

	Name	Signature with Date
Faculty	Mr. Ch R K Raju	1.4
Module Coordinator	Mr. Ch R K Raju	by .
Programme Coordinator	Dr. RVVSV Prasad	Pasara de

Principal