

# SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGIC

(Autonomous)

Narsapur, West Godavari District, A.P. 534280

# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

#### TEACHING PLAN

Course Code		Course Title	Semester	Branch/ Sec	Contact Periods /Week	Academic Year	commen	nte of ncement of nester	
PE	STRUC	NCED DA TURES & RITHMS	FO 255000	CSE- A,B,C,D, E	5	2024-25	30-7-	-2024	
COURSE	OUTCOME				Ta		- 10 So - 300)= 100		
1	Discover th	ne performa	ance of an algorith	nce of an algorithm using asymptotic notation. (K2)					
2	Apply adv	anced data	structures such as	tructures such as priority queues, Heaps. (K3)					
3 .		d greedy and, divide and conquer programming techniques to solve efficient solutions zation problems. (K3) and derive dynamic-programming paradigm and apply when an algorithmic design							
4	City atimes	alla for it (	V 31						
5	Understand the complexity classes NP-Hard and NP-Complete and solve related decision problems. (K2)								
UNIT	со	Topics No.	To	opics/Activit	у	Text Book / Referen ce	Conta ct Hour	Delivery method	
I		1.1	Introduction to A	Algorithm A	nalysis	T1	1	Chalk and Talk	
	Discover the performance of an algorithm using asymptotic notation. (K2)	1.2	Space and Time	Complexity	analysis	T1	2	PPT	
		1.3	Asymptotic Note	ations		T1 .	1	Chalk and Talk	
		1.4	Recursive functi	ons		T1	2	PPT	
		1.5	AVL Trees - Cr	reation, Inser	tion operati	ons T1	1	PPT	
		1.6	AVL Trees – De Applications			T1	2	PPT	
		1.7	B Trees - Creat	ion, Insertio	n operations	T1	1	Chalk and Talk	
		1.8	B Trees – Delet Applications	ion operation	n and	T1	2	PPT	
		1,9	B+ Trees – Crea	ation, Inserti	on operation	ns T1	1	Chalk an Talk	
	Disco	1.10	B+ Trees – De Applications	eletion opera	tion and	T1	2	PPT	



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					Total	1:	5
	es SS.	2.1	Heap '	Trees (Priority Queues) – Min Heaps	T1	2	Chalk and Talk
	ctur	2.2	Heap '	Trees (Priority Queues) - Max Heaps	T1	2	PPT
	S, t	2.3	Heap	Trees Operations	T1	1	PPT
	ta s sue	2.4	Heap	Trees Applications	T1	1	PPT
II	sed da ity que (K3)	2.5	Graph	s – Terminology, Representations	T1	1	Chalk and Talk
	orit ()	2.6	Basic	Search and Traversals	T1	2	PPT
	dva prik	2.7	Conne	ected Components	T1	1	PPT
	Apply advanced data structures such as priority queues, Heaps. (K3)	2.8	Bicon	nected Components	T1	1	Chalk and Talk
	Ap	2.9	Appli	cations	T1	1	Chalk and Talk
					Tot	al 1	2
	Ë	3.1	Divid	e and Conquer: The General Method	T2	2	Chalk and Talk
	atio	3.2	Quick		T2	1	PPT
	and les to timiza	3.3	+	e Sort	T2	1	Colloborative Learning
	vide miqu r opi	3.4	Heap Sort			1	Chalk and Talk
III	d, di tech ns fo	3.5		sen's matrix multiplication.	T2	1	PPT
	y and ning ution	3.6	Greed	dy Method: General Method	T2	2	PPT
	reed rami it sol it sol 3)	3.7	Job S	equencing with deadlines	T2	1	PPT
Understand greedy and, divide and conquer programming techniques to solve efficient solutions for optimization problems. (K3)	and g prog icier s. (K	3.8	Knap	T2	1	Chalk and Talk	
	ersta puer e eff	3.9	Mini	mum cost spanning trees	T2	1	PPT
Und cong solv		3.10	Singl	e Source Shortest Paths	T2	1	PPT
	_1				Total	12	
dynamic- ind apply design			4.1	Dynamic Programming: General Method	T2	1	PPT
	dyna and a c de		1.2	All pairs shortest paths	T2	1	Quiz
Id derive paradigm a algorithmic for it.(K3)		4.3	Single Source Shortest Paths— General Weights (Bellman Ford Algorithm)		2 Chalk an Talk		
	nnd g pail alg		4.4	Optimal Binary Search Trees	T2	1	PPT
	Illustrate ar programming when an Situation calls		4.5	0/1 Knapsack	T2	1	PPT
	Illustrate rogramm vhen ai		4.6	String Editing	T2	1	
	Illu prog where		4.7 Backtracking: General Method		T2	1	Chalk and Talk



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4.8   8-Queens Problem   T2   1   PPT						The second secon		
			4	1.8	8-Queens Problem	T2	2	Chalk and Talk
A.11   O/1 Knapsack Problem   T2   2   Chalk at Talk			4	1.9			1	PPT
Total 15  See Problem		4.	.10	2 2			PPT	
V   Problem   Solution   Soluti			4	.11	0/1 Knapsack Problem	T2	2 2	Chalk and Talk
Syllabus  5.1 Method  5.2 0/1 Knapsack Problem  T1&T2 2 Flippe learning Salesperson problem  T1 2 PPT  Total 16  CUMULATIVE PROPOSED PERIODS  Text Books:  S. No.  AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  1 Universities Press, 2018  5.2 0/1 Knapsack Problem  T1&T2 2 Chalk at Talk  Constant Beyond Syllabus  T1&T2 2 Chalk at Talk  CUMULATIVE, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition.	2					Tot	tal 15	
5.7 Traveling Salesperson  T1 2 Chalk at Talk  Content Beyond Syllabus  Floyd-Warshall's Algorithm  Total  CUMULATIVE PROPOSED PERIODS  Text Books:  S. No.  AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition	sses	solve 2)	5.1	1 marsanan		Т1	2	PPT
5.7 Traveling Salesperson  T1 2 Chalk at Talk  Content Beyond Syllabus  Floyd-Warshall's Algorithm  Total  CUMULATIVE PROPOSED PERIODS  Text Books:  S. No.  AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition	ity cla	te and ms. (K	5.2	<del>                                     </del>		T1&T2	2	Flipped learning
Total 16  Content Beyond Syllabus Floyd-Warshall's Algorithm  Total 16  CUMULATIVE PROPOSED PERIODS 70  Text Books:  S. No. AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition Universities Press, 2018	plex	nple:	5.3	Trav	velling Salesperson problem	T1	2	PPT
Total 16  Content Beyond Syllabus Floyd-Warshall's Algorithm  Total 16  CUMULATIVE PROPOSED PERIODS 70  Text Books:  S. No. AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition Universities Press, 2018	e com	IP-Con	5.4		)	T1&T2	2	Chalk and Talk
5.7 Traveling Salesperson  T1 2 Chalk at Talk  Content Beyond Syllabus  Floyd-Warshall's Algorithm  Total  CUMULATIVE PROPOSED PERIODS  Text Books:  S. No.  AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition	lerstand th	lard and Nated decis	5.5	Prob	olems: Clique Decision	Section and the section of the secti		PPT
Content Beyond Syllabus  Total  CUMULATIVE PROPOSED PERIODS  S. No.  AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition Universities Press, 2018	Unc	NP-H rel	5.6			Т1	2	PPT
Beyond Syllabus Floyd-Warshall's Algorithm Total 16  CUMULATIVE PROPOSED PERIODS 70  Text Books:  S. No. AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edition Universities Press, 2018			5.7	Traveling Salesperson		T1	2	Chalk and Talk
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S. No. AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION  Fundamentals of Data Structures in C++, Horowitz, Ellis; Sahni, Sartaj; Mehta, Dinesh Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edi		****			CUMULATIVE PROPO	OSED PERIO	OS 70	
Edition Universities Press, 2018  Computer Algorithms/C++ Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran 2nd Edi			ORS, BO	ок т	ITLE, EDITION, PUBLISHE	ER, YEAR OF	PUBLICA	TION
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University Press, 2019	2				C++ Ellis Horowitz, Sartaj Sah	ni, Sangutheva	r Rajasekar	an 2nd Editio
Reference Books:	Reference B	Books:			**************************************			****
S. No. AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION	S. No.	AUTH	ORS, BO	ок т	ITLE, EDITION, PUBLISHE	ER, YEAR OF	PUBLICA	ATION
Data Structures and program design in C, Robert Kruse, Pearson Education Asia, 2006	1							
An introduction to Data Structures with applications, Trembley & Sorenson, McGraw I 2017	2	An introduction to Data Structures with applications, Trembley & Sorenson, McGraw Hi 2017						
3					2			



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The Art of Computer Programming, Vol.1: Fundamental Algorithms, Donald E Knutl Addison-Wesley, 1997						
Data Structures using C & C++: Langsam, Augenstein & Tanenbaum, Pearson, 1995						
Algorithms + Data Structures & Programs:, N. Wirth, PHI						
Fundamentals of Data Structures in C++: Horowitz Sahni & Mehta, Galgottia Pub.						
Data structures in Java: , Thomas Standish, Pearson Education Asia						
ls						
http://peterindia.net/Algorithms.html						
https://www.swarnandhra.ac.in/dsv						
KS .						
https://www.tutorialspoint.com/advanced_data_structures/index.asp						
Abdul Bari, 1. Introduction to Algorithms (youtube.com)						
bit.ly/BRK_DSV						

		Name	Signature with Date
i.	Faculty I	Dr A Mohan Durga Kumar	Solde
ii.	Faculty II	Mr. S Raja	The state of the s
iii.	Faculty III	Mr. B. S. Varaprasad	Day,
iv.	Course Coordinator	Mr. B. S. Varaprasad	aprox
٧.	Module Coordinator	Mr. M Rajesh kumar	
vi.	Programme Coordinator	Dr.P.Srinivasulu	14/2

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