

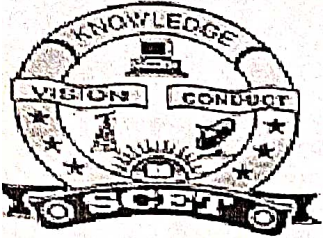
SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF MATHEMATICS

TEACHING PLAN

Course Code	Course Title	Sem	Branches	Contact Periods /Week	Academic Year	Date of commencement of Semester
20IT3T01	DISCRETE MATHEMATICS	III	CSE (A,B, C) IT & AIML	42/16	2021-22	25-10-2021
COURSE OUTCOMES: Students are able to						
1	identify programming errors efficiently through enhanced logical capabilities (K3)					
2	find a general solution of recurrence equation (K3)					
3	learn set theory, graph of the relations which are used in data structures (K3)					
4	explain the concepts in graph theory (K3)					
5	apply graph theory concepts in core subjects such as data structures and network theory effectively. (K3)					
UNIT	Out Comes / Bloom's Level	Topic No.	Topics/Activity	Text Book / Reference	Contact Hour	Delivery Method
I	Students are able to identify programming errors efficiently through enhanced logical capabilities CO1 (K3)	Mathematical Logic				
		1.1	Connectives, negation, conjunction, disjunction conditional, bi-conditional,	T ₁ & T ₂	1	Chalk & Talk, Active Learning, PPT & Tutorial
		1.2	statement formula and Truth Tables	T ₁ & T ₂	1	
		1.3	well formed formulae, tautologies, equivalence, implication	T ₁ & T ₂	1	
		1.4	equivalence of formulae,	T ₁ & T ₂	1	
		1.5	duality, tautological implications,	T ₁ & T ₂	1	



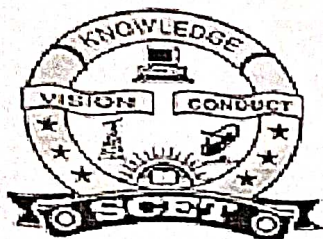
SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

		1.6	functionally complete set of connectives, other connectives	$T_1 \& T_2$	1	
		1.7	principal disjunctive and conjunctive normal forms	$T_1 \& T_2$	1	
		1.8	inference calculus, rules of inference	$T_1 \& T_2$	1	
		1.9	consistency of premises, indirect method of proof	$T_1 \& T_2$	1	
		1.10	Theory of inference for the statement calculus, validity using Truth tables.	$T_1 \& T_2$	1	
Total					10	
RECURRENCE RELATIONS						
II	Students are able to find a general solution of recurrence equation CO2(K3)	2.1	Generating Function of Sequences	$T_1, T_2 \& R_1$	1	Chalk & Talk, Active Learning, PPT & Tutorial
		2.2	Calculating Coefficient of generating functions and Generating functions	$T_1, T_2 \& R_1$	1	
		2.3	Recurrence relations	$T_1, T_2 \& R_1$	1	
		2.4	solving recurrence relation by substitution	$T_1, T_2 \& R_1$	1	
		2.5	the method of Characteristic roots	$T_1, T_2 \& R_1$	1	
		2.6	Solution of Inhomogeneous	$T_1, T_2 \& R_1$	1	
		2.7	Recurrence Relation	$T_1, T_2 \& R_1$	1	
Total					7	

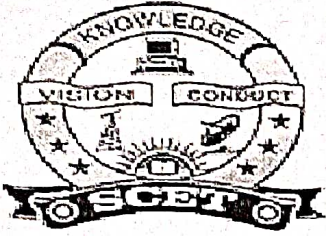


SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharamapuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

		SET THEORY AND RELATIONS				
III	The student should be able learn set theory, graph of the relations which are used in data structures.(CO3)(K3).	3.1	Relations and ordering, Relations, Properties of binary Relations in a set	$T_1, T_2 & R_1$	1	Chalk & Talk, Active Learning, PPT & Tutorial
		3.2	Relation Matrix and the Graph of a Relation	$T_1, T_2 & R_1$	1	
		3.3	Partition and covering of a set	$T_1, T_2 & R_1$	1	
		3.4	Equivalence Relation	$T_1, T_2 & R_1$	1	
		3.5	Compatibility Relation	$T_1 & T_2$	1	
		3.6	Composition of Binary Relations	$T_1 & T_2$	1	
		3.7	Partial ordering, Hasse diagram	$T_1 & T_2$	1	
		3.8	Principle of Inclusion-Exclusion	$T_1 & T_2$	1	
		3.9	Pigeon hole principle and its applications	$T_1, T_2 & R_1$	1	
Total					9	
		GRAPHS THEORY				
IV	The student should be able to explain the concepts in graph theory (CO4) (K3).	4.1	Basic Concepts	$T_1, T_2 & R_1$	1	Chalk & Talk, Active Learning, PPT & Tutorial
		4.2	Representation of Graph	$T_1, T_2 & R_1$	1	
		4.3	Sub graphs, Multigraphs	$T_1 & T_2$	1	
		4.4	Planar graphs	$T_1 & T_2$	1	
		4.5	Euler Paths, Euler circuits	$T_1, T_2 & R_1$	1	
		4.6	Hamiltonian Graphs	$T_1 & T_2$	1	
		4.7	Graph Isomorphism	$T_1 & T_2$	1	
		4.8	Related Problems	$T_1 & T_2$	1	
		4.9	Chromatic Number	$T_1 & T_2$	1	
Total					9	



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

		TREES				
V	The student should be able to apply graph theory concepts in core subjects such as data structures and network theory effectively. (CO5) (K3)	5.1	Spanning Tree	T ₁ & T ₂	1	Chalk & Talk, Active Learning, PPT & Tutorial
		5.2	Minimal Spanning Trees	T ₁ & T ₂	1	
		5.3	BFS Algorithm	T ₁ & T ₂	1	
		5.4	DFS Algorithm	T ₁ & T ₂	1	
		5.5	Kruskal's Algorithm	T ₁ & T ₂	1	
		5.6	Prim's Algorithm	T ₁ & T ₂	1	
		5.7	Binary trees	T ₁ & T ₂	1	
Total					7	
CUMULATIVE PROPOSED PERIODS					42	
Text Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
T1	J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw Hill, 1997.					
T2	Joe L. Mott, Abraham Kandel and T. P. Baker, Discrete Mathematics for computer scientists & Mathematicians, 2/e, Prentice Hall of India Ltd, 2012.					
Reference Books:						
S.No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION					
R1	Keneth. H. Rosen, Discrete Mathematics and its Applications, 6/e, Tata McGraw-Hill, 2009					
R2	Richard Johnsonburg, Discrete Mathematics, 7/e, Pearson Education, 2008					
R3	Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice Hall of India, 2006.					
Web Details						
1	https://onlinecourses.nptel.ac.in/noc16_ma01/preview					
2	https://stanford.edu/~rezab/classes/cme305/W17/					
3	https://nptel.ac.in/courses/106106094/					
4	https://nptel.ac.in/courses/111107058/					

		Name	Signature with Date
i.	Faculty	Mrs. S.S.V.Sanathi(CSE-A, B & C)	<i>S.S.V. Sanathi</i>
ii.	Faculty	Mrs. P. Sujatha (IT) AIML	<i>P. Sujatha</i>
iii.	Course Coordinator	Mrs. S.S.V.Sanathi	<i>S.S.V. Sanathi</i>
iv.	Module Coordinator	Ch. Peddiraju	<i>Ch. P. Peddiraju</i>
v.	Programme Coordinator	Dr. S. Dharaja Devi	<i>S. Dharaja Devi</i>

S. Dharaja Devi
Principal