SREE VIDYANIKETHAN ENGINEERING COLLEGE (AUTONOMOUS)
SREE SAINATH NAGAR, A. RANGAMPET-517 102

Department of Computer Science and Engineering
LESSON PLAN

Name of the Subject: DISCRETE MATHEMATICAL STRUCTURES(14BT31201)
Class & Semester: II B. Tech – I Semester
Name(s) of the faculty Member(s): MS. E.Sandhya
Mr. V S V S S S Chakradhar

S. No.	Topic	No. of periods required	Book(s) followed	Dates	Topics of Self Study
	Unit-I: MATHEMATICAL LOGIC AND PREDICATES				
1.	Statements and notations, Connectives	1	T1		
2.	Well Formed Formulae &Truth Tables, Tautology	1	T1		
3.	Diagnostic &Equivalence of formulae	1	T1		
4.	Tutorial-1	1			
5.	Normal Forms-CNF, DNF	1	T1		
6.	PCNF&PDNF	1	T1		Study Disproof by Contradiction
7.	Predicate Calculus, Free And Bound Variables	1	T1		
8.	Tutorial-2	1			
9.	Rules of Inference& Rules of Consistency	1	T1		
10.	Proof of Contradiction	1	T1		
11.	Automatic Theorem Proving	1	T1		
12.	Tutorial-3	1			
13.	Formative Test-1	1			
	Total of periods required:	**13**			
	Unit-II: FUNCTIONS AND RELATIONS				
14.	Properties of Binary Relations	1	T1		
15.	Equivalence Relations, Compatibility Relations	1	T1		
16.	Tutorial-4	1			
17.	Partial ordering Relations	1	T1		
18.	Hasse diagram and its applications	1	T1		List the special types of lattices
19.	Lattice and its properties	1	T1		
20.	Tutorial-5	1			
21.	Function, Inverse Function	1	T1		
22.	Composition of function	1	T1		
23.	Formative Test-2 & Recursive Functions	1			
24.	Tutorial-6	1			
	Total of periods required:	**11**			

		Unit-III: Algebraic Structures			
25.	Algebraic System-example	1	T1		
26.	General Properties	1	T1		
27.	Semi-Groups& Monoids	1	T1		
28.	Tutorial-7	1			Cyclic groups
29.	Groups & Sub-groups	1	T1		
30.	Homomorphism	1	T1		
31.	Isomorphism & Formative Test-3	1			
32.	Tutorial-8	1			
Total of periods required:		**08**			
		Unit-IV: : MATHEMATICAL REASONING AND RECURRENCE RELATIONS			
33.	Methods of Proof, Mathematical Induction	1	T2		
34.	Counting: Basics of counting, Inclusion-Exclusion Principle	1	T2		
35.	Permutations and combinations	1	T2		
36.	Tutorial-9	1			
37.	Generalized Permutations & combinations	1	T2		
38.	Generating Functions of Sequences	1	T2		Methods of second order Linear Homogeneous Recurrence Relations
39.	Coefficients of Generating Functions	1	T2		
40.	Tutorial-10	1			
41.	Introduction to Recurrence Relations	1	T2		
42.	Solve Recurrence relations by Generating Functions	1	T2		
43.	Methods of Characteristic Roots	1	T2		
44.	Tutorial-11	1			
45.	Solutions of Inhomogenous Recurrence relations & Formative Test-4	1			
Total of periods required:		**13**			
		Unit-V: GRAPH THEORY AND ITS APPLICATION			
46.	Introduction to Graph and its types	1	T2		Konigsberg Bridge Problem
47.	Graph basic Terminology, Representation of Graphs	1	T2		
48.	Tutorial-12	1			
49.	Graph Isomorphism ,Euler Paths and Circuits	1	T2		
50.	Hamiltonian Paths and Circuits	1	T2		
51.	Planar Graphs & Euler's Formula	1	T2		
52.	Tutorial-13	1			
53.	Graph Coloring,4-color	1	T2		

54.	Introduction to Trees and its Properties, Application of trees	1	T2		
55.	Spanning and minimum cost spanning trees	1	T2		
56.	Tutorial-14	1			
57.	Formative Test-5	1			
	Total of periods required:	**12**			
	Grand total of periods required:	**57**			

TEXT BOOKS:

T1. J.P. Trembly and R. Manohar, **"Discrete Mathematical Structures with Applications to Computer Science",** Tata McGraw Hill, 2001.

T2. Kenneth H. Rosen, **"Discrete Mathematics and its Applications",** Tata McGraw Hill, 6th edition, 2007.

REFERENCE BOOKS:

R1. Joe L.Mott and Abraham Kandel, **"Discrete Mathematics for Computer Scientists and Mathematicians",** Prentice Hall of India Private Limited, 2nd edition, 2004.

R2. Ralph P. Grimaldi and B.V.Ramana, **"Discrete and Combinatorial Mathematics- an Applied Introduction",** Pearson Education, 5th edition, 2006.

    Signature of the faculty Member   **HOD, IT**