

Department of Computer Science and Systems Engineering

Lesson Plan cum Diary 2015-'16

: **DISCRETE MATHEMATICAL STRUCTURES** (14BT31201)

Name of the faculty Member : **Mr P Lakshmi Sagar**

Class & Semester : **II B.Tech I Semester**

Section: **CSSE - A**

S. No.	Topic	No. of periods required	Date(s) covered	No. of periods used	Book(s) followed	Remarks	Self Learning Concepts
Unit-I: MATHEMATICAL LOGIC AND PREDICATES							
1.	Statements and notations, Connectives	1			T1		Identify the basic application of automatic theorem proving
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		
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 no of periods required:		13	Total no of periods used:				
Unit-II: FUNCTIONS AND RELATIONS							
14.	Properties of Binary Relations	1			T1		Examine special types of lattices
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		
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			T1		
24.	Tutorial-6	1					
Total no of periods required:		11	Total no of periods used:				
Unit-III: Algebraic Structures							
25.	Algebraic System-example	1			T1		Study Cyclic groups
26.	General Properties	1			T1		
27.	Semi-Groups & Monoids	1			T1		
28.	Tutorial-7	1					
29.	Groups & Sub-groups	1			T1		
30.	Homomorphism	1			T1		
31.	Isomorphism & Formative Test-3	1			T1		
32.	Tutorial-8	1					
Total no of periods required:		08	Total no of periods used:				
Unit-IV: : MATHEMATICAL REASONING AND RECURRENCE RELATIONS							
33.	Methods of Proof, Mathematical Induction	1			T2		(1)Study the advanced counting principles 2)Identify the advanced concepts on generating functions
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		
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			T2		
Total no of periods required:		13	Total no of periods used:				
Unit-V: GRAPH THEORY AND ITS APPLICATION							
46.	Introduction to Graph and its types	1			T2		Apply the advanced graph based algorithm for graph coloring with
47.	Graph basic Terminology, Representation of Graphs	1			T2		
48.	Tutorial-12	1			T2		

49.	Graph Isomorphism ,Euler Paths and Circuits	1			T2		5 chromatic number
50.	Hamiltonian Paths and Circuits	1			T2		
51.	Planar Graphs & Euler's Formula	1			T2		
52.	Tutorial-13	1			T2		
53.	Graph Coloring,4-color	1					
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 no of periods required:		11	Total no of periods used:				
Grand total of periods required:		57	Grand total of periods used:				

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

Course Coordinator

Chairman, BOS