

# Bhoj Reddy Engineering College for Women: Hyderabad

Department of Information Technology

Lesson plan of faculty member for the academic year 2016–17

Class: II BTech

Branch-Section: IT-A

Semester: I

Subject: Mathematical Foundations of Computer Science

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
<b>UNIT – I: Mathematical Logic</b>		
1	Statements and notations	14 June 2016
2	Connectives	15 June 2016
3	Well-formed formulas	16 June 2016
4	Truth tables	17 June 2016
5	Tutorial (G1, G2, G3) – Overview of Mathematical Logic, Connectives	13, 17, 18 June 2016
6	Tautology	21 June 2016
7	Equivalence Implication	22 June 2016
8	Normal forms	23 June 2016
9	Quantifiers	24 June 2016
10	Tutorial (G1, G2, G3) – Problems on Tautology	20, 24, 25 June 2016
11	Universal Quantifiers	28 June 2016
12	Predicative logic	29 June 2016
13	Free and Bound variables	30 June 2016
14	Rules of Inference	1 July 2016
15	Tutorial (G1, G2, G3) - Problems on Quantifiers	27 June, 1, 2 July 2016
16	Consistency	5 July 2016
17	Proof of Contradiction	8 July 2016
18	Tutorial (G1, G2, G3) - Problems on Rules of Inference	4, 8, 9 July 2016
19	Automatic theorem proving	12 July 2016
<b>UNIT-II: Relations</b>		
20	Basic laws of Set Algebra	13 July 2016
21	Properties of Binary relations	14 July 2016
22	Equivalence	15 July 2016
23	Tutorial(G1, G2, G3)- Properties of BR	11, 15, 16 July 2016
24	Transitive closure	19 July 2016
25	Partial Orders	20 July 2016
26	Lattices	21 July 2016
27	Hasse diagram	22 July 2016
28	Tutorial(G1, G2, G3)- Problems on Set Algebra	18, 22, 23 July 2016
29	Functions	26 July 2016
30	Inverse function	27 July 2016
31	Composition of functions	28 July 2016
32	Recursive functions	29 July 2016
33	Tutorial(G1, G2, G3)- Problems on Functions	25, 29, 30 July 2016
34	Lattices and it's properties	2 August 2016
35	Algebraic Structures	3 August 2016
36	Algebraic Systems Examples and general properties	4 August 2016
37	Semi groups and monoids	5 August 2016
38	Tutorial(G2, G3)- Problems on Algebraic Systems	5, 6 August 2016
39	Groups and Sub groups	16 August 2016
40	Homomorphism	17 August 2016
41	Isomorphism	18 August 2016

<b>UNIT-III: Elementary Combinatorics</b>		
42	Basic of Counting	19 August 2016
43	Tutorial(G2, G3)-Problems on Homomorphism , Isomorphism	19, 20 August 2016
44	Permutations	23 August 2016
45	Combinations	24 August 2016
46	Permutations & Combinations with repetitions	26 August 2016
47	Tutorial(G1, G2, G3)- Problems on Permutations & Combinations	22, 26, 27 August 2016
48	Enumeration Permutations with Constrained repetitions	30 August 2016
49	Binomial Coefficients	31 August 2016
50	Binomial Multinomial theorems	1 September 2016
51	The Principle of Inclusion – Exclusion	2 September 2016
52	Tutorial(G1, G2, G3)- Problems on Binomial Coefficients	29 August, 2, 3 September 2016
53	Pigeon hole principles and its application	6 September 2016
<b>UNIT-IV: Recurrence Relation</b>		
54	Generating Functions	7 September 2016
55	Function of Sequence	8 September 2016
56	Calculating Co-efficient of generating function	9 September 2016
57	Tutorial(G2, G3)- Problems on Recurrence Relation	9, 10 September 2016
58	Recurrence relations	13 September 2016
59	Solving Recurrence relations by substitution & Generating funds	14 September 2016
60	The method of Characteristic roots and solution of in homogeneous	15 September 2016
<b>UNIT-V: Graph Theory</b>		
61	Representation of graph	16 September 2016
62	Tutorial(G2, G3)- Basics of Graphs	16, 17 September 2016
63	Matrix representation of graph	20 September 2016
64	Trees	21 September 2016
65	BFS	22 September 2016
66	DFS	23 September 2016
67	Tutorial(G1, G2, G3)- Problems of Trees	19, 23, 24 September 2016
68	Spanning trees	27 September 2016
69	Planar graphs	28 September 2016
70	Graph theory and Applications	29 September 2016
71	Tutorial(G1, G3)- Problems on Graph theory	26 September, 1 October 2016
72	Basic concepts Isomorphism	4 October 2016
73	Tutorial(G1)- Problems on Isomorphism	3 October 2016
74	Basic concepts Sub graphs	27 October 2016
75	Multi graphs	28 October 2016
76	Tutorial(G2, G3)- Problems on Multi graphs	28, 29 October 2016
77	Euler circuits	1 November 2016
78	Hamiltonian graphs	2 November 2016
79	Chromatic numbers	3 November 2016
80	Tutorial(G1)- Previous question papers	31 October 2016

**Text books:**

1. Elements of Discrete Mathematics – A Computer oriented Approach- C L Liu, D P Mohapatra, 3/e, TMH.
2. Discrete Mathematics for Computer Scientists & Mathematicians \_ J.L Mott, A. Kandel, T.P. Baker, PHI.

Name and signature of the faculty: Garima Jain

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Name and signature of Head of the Department: G Srinivas Rao ----