

Bhoj Reddy Engineering College for Women: Hyderabad

Department of Information Technology

Lesson plan of faculty member for the academic year 2017–18

Class: II BTech

Branch-Section: IT-A

Semester: I

Subject: Mathematical Foundations of Computer Science

Lectures per week: 5

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Mathematical Logic		
1	Introduction, Statements and notations, Connectives	12 July 2017
2	Well-formed formulas, Truth tables, Tautology	14 July 2017
3	Equivalence Implication	15 July 2017
4	Two-state Devices and Statement Logic	18 July 2017
5	Normal forms	19 July 2017
6	Principal Disjunctive & Conjunctive Normal Form	21 July 2017
7	The Theory of Inference For Statement Calculus	22 July 2017
8	Consistency of Premises and Indirect Method of Proof	24 July 2017
9	The Predicate Calculus	25 July 2017
10	Free and Bound variables	26 July 2017
11	Inference Theory of the Predicate Calculus	28 July 2017
UNIT-II: Set Theory		
12	Introduction, Basic Concept of Set Theory	29 July 2017
13	Some Operations on set	31 July 2017
14	Venn Diagrams	1 August 2017
15	Cartesian Products	2 August 2017
16	Representation of Discrete Structures	4 August 2017
17	Pointers and Linked Allocation	5 August 2017
18	An Application of Bit Represented sets	7 August 2017
19	Relations and Ordering	8 August 2017
20	Relation Matrix and the Graph of a Relation	9 August 2017
21	Equivalence Relations	11 August 2017
22	Composition of Binary Relations	12 August 2017
23	Partial Ordering	16 August 2017
24	Functions, Inverse Functions	18 August 2017
25	Characteristic Function of a Set	19 August 2017
26	Algebraic Structures: Introduction to Algebraic System	21 August 2017
27	Some Simple Algebraic Systems and General Properties	22 August 2017
28	Semi groups and Monoids	23 August 2017
29	Homomorphism of Semi groups and Monoids	26 August 2017
30	Groups, Subgroups and Homomorphisms	28 August 2017
31	Normal Subgroups	29 August 2017
32	Algebraic Systems with Two Binary Operations	30 August 2017
33	Lattices as Partially Ordered Sets	1 September 2017
34	Lattices as Algebraic Systems	4 September 2017
35	Some Special Lattices	5 September 2017
36	Boolean Algebra	9 September 2017
37	Subalgebra, Direct Product, and Homomorphism	11 September 2017
UNIT-III: Elementary Combinatorics		
38	Basic of Counting	12 September 2017
39	Indirect Counting	13 September 2017
40	Combinations and Permutations	15 September 2017
41	Enumeration of Combinations and Permutations	16 September 2017

42	Enumeration Combinations and Permutations with Repetitions	18 September 2017
43	Enumeration Permutations with Constrained Repetitions	19 September 2017
44	Ordered and Unordered Partitions	22 September 2017
45	Binomial Coefficients	23 September 2017
46	Some Examples of Combinatorial Identities	3 October 2017
47	The Binomial Multinomial theorems	4 October 2017
48	The Principle of Inclusion – Exclusion	6 October 2017
UNIT-IV: Recurrence Relation		
49	Generating Functions of Sequence	7 October 2017
50	Calculating Co-efficient of generating function	9 October 2017
51	Use of Partial Fraction Decomposition	10 October 2017
52	Recurrence relations	11 October 2017
53	Solving Recurrence relations by substitution & Generating funds	13 October 2017
54	The method of Characteristic roots	16 October 2017
55	Solution of Inhomogeneous Recurrence relations	17 October 2017
UNIT-V: Graphs		
56	Basic Concepts	20 October 2017
57	Isomorphisms and Subgraphs	21 October 2017
58	Special graphs	23 October 2017
59	Trees and Their Properties	24 October 2017
60	Spanning Trees	25 October 2017
61	Minimal Spanning Trees	27 October 2017
62	Directed Trees	28 October 2017
63	Binary Trees	30 October 2017
64	Planar graphs	31 October 2017
65	Euler's Formula	1 November 2017
66	Multigraphs and Euler Circuits	3 November 2017
67	Hamiltonian Graphs	6 November 2017
68	Chromatic Numbers, The Four Color Problem	7 November 2017

Text books:

1. Discrete Mathematical Structures with Applications to Computer Science, J.P. Tremblay, R. Manohar, McGraw Hill education (India) Private Limited. (UNITS - I, II)
2. Discrete Mathematics for Computer Scientists & Mathematicians, Joe L. Mott, Abraham Kandel, Theodore P. Baker, Pearson , 2nd ed. (Units - III, IV, V)

Name and signature of the Faculty: Safoora Fatima ----

Name and signature of Head of the Department: K Sandeep Kumar----