ATME College of Engineering

Department of Mathematics

Lesson Plan & Work-done Diary for AY:2024-25, EVEN Semester

Course with Code: BCS405A, DISCRETE MATHEMATICS				**Faculty:**			**Semester & Section: IV 'Cs & Design'**	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
MODULE-1(FUNDAMENTALS OF LOGIC)								
1		Fundamentals of Logic: Basic connectives and truth tables	Chalk and Talk					
2		Logical equivalence-The laws of logic.	Chalk and Talk					
3		Logical equivalence-The laws of logic.	Chalk and Talk					
4		Logical equivalence-The laws of logic.	Chalk and Talk					
5		Logical implication-Rules of Inference.	Chalk and Talk					
6		Logical implication-Rules of Inference.	Chalk and Talk					
7		Quantifiers-Definition and the proof of theorems	Chalk and Talk					
8		Quantifiers-Definition and the proof of theorems	Chalk and Talk					

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Module-2 (PROPERTIES OF THE INTEGERS)								
9		Mathematical Induction-well Ordered Principle	Chalk and Talk					
10		Problems on Mathematical Induction	Chalk and Talk					
11		Recursive Definition, problems on recursive explicit methods	Chalk and Talk					
12		The Rules of Sum and Product	Chalk and Talk					
13		Permutations & Combinations	Chalk and Talk					
14		Problems on Permutations & Combinations	Chalk and Talk					
15		Binomial and Multinomial Theorems	Chalk and Talk					
16		**Problems on** Binomial and Multinomial Theorems	Chalk and Talk					
17		Combination with Reputations	Chalk and Talk					

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MODULE-3 (RELATIONS AND FUNCTIONS)								
18		Relations and functions-Cartesian products and Relations, Functions-Plain and one-to-one functions.	Chalk and Talk					
19		Function composition and inverse functions.	Chalk and Talk					
20		Relations-Properties of Relations. Zero-one Matrices and Directed Graphs	Chalk and Talk					
21		Partial orders-Hasse Diagrams	Chalk and Talk					
22		Equivalence relation and Partitions	Chalk and Talk					
23		Introduction to Graph Theory: Definition and examples.	Chalk and Talk					
24		Subgraph, compliments and Graph isomorphism.	Chalk and Talk					
25		Vertex degree, Euler Trials and Circuits.	Chalk and Talk					
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MODULE-4 (THE PRINCIPLE OF INCLUSION AND EXCLUSION)								
27		**Principle of Inclusion and Exclusion**	Chalk and Talk					
28		Problems on **Principle of Inclusion and Exclusion**	Chalk and Talk					
29		**Derangements**	Chalk and Talk					
30		Problems on **Derangements**	Chalk and Talk					
31		**Rook Polynomials**	Chalk and Talk					
32		Problems on Rook **Polynomials**	Chalk and Talk					
33		**First-order Recurrence Relations**	Chalk and Talk					
34		Problems on **First-order Recurrence Relations**	Chalk and Talk					
35		**Second-order Homogeneous Recurrence Relations**	Chalk and Talk					

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MODULE-5 (INTRODUCTION TO GROUPS THEORY)								
37		Definitions, properties, Homomorphism's, Isomorphism's,	Chalk and Talk					
38		Definitions and Examples of Particular Groups Klein 4-group,	Chalk and Talk					
39		Additive group of Integers modulo n	Chalk and Talk					
40		Multiplicative group of Integers modulo-p	Chalk and Talk					
41		permutation groups, Properties of groups	Chalk and Talk					
42		Subgroups, cyclic groups, Cosets, Lagrange's Theorem.	Chalk and Talk					
43		Problems on Lagrange's Theorem.	Chalk and Talk					
44								
45								

	Activity	Planned	Actual	Remarks
1	Theory Classes	43		
2	Assignments/ Quizzes/ Self-study	2 Assignments 5 quizzes		
3	Tutorials/ Extra classes	-		
4	Internal Assessments	3		
5	ICT based Teaching (% of usage in Curriculum)	-		
Planning			**Execution**	
Faculty Signature:			**Faculty Signature:**	
HoD Signature:			**HoD Signature:**	