STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN (November 2024 – April 2025)

Department : **Mathematics**

Name of the Faculty : **Dr. Benazir Obilia.X. A**

Course Title : **Discrete Mathematics**

Course Code : **23MT/MC/DM43**

Shift : **II**

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	acquire the knowledge of logical techniques and identify their applications	K1
CO2	recognize and apply the concepts of logic, lattices, Boolean algebra and Automata in related fields	K2
CO3	demonstrate the characterization of propositional calculus, lattices, Boolean functions and automata	K3
CO4	interpret the sets under study to apply in data structures and theory of computer languages	K4
CO5	assess the emerging fields to utilize the intrinsic concepts of discrete mathematics	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Nov 18 – 25, 2024 (Day Order 1-6)	1	**Logic and Propositional Calculus** 1.1 Logical Equivalence 1.2 Algebra of Propositions 1.3 Arguments	K1-K5	4	CO1-5	Lecture, Discussions and Problem Solving	Questioning

Nov 26- Dec 3, 2024 (Day Order 1 to 6)	1	**Logic and Propositional Calculus** 1.4 Logical Implication 1.5 Propositional Functions, Quantifiers	K1-K5	4	CO1-5	Lecture, Discussions and Problem Solving	Questioning
Dec 4-11, 2024 (Day Order 1 to 6)	1	**Logic and Propositional Calculus** 1.6 Negation of Quantified Statements 1.7 Normal Forms	K1-K5	4	CO1-5	Lecture, Discussions and Problem Solving	Questioning
Dec 12-19, 2024 (Day Order 1 to 6)	2	**Lattices** 2.1 Lattice 2.2 Properties of lattices	K1-K5	4	CO1-5	Lecture, Discussions and Problem Solving	Questioning & **III Component-1** MCQ Test Section 1.1, 1.3-1.6 [15 marks]
Dec 20, 2024 (Day Order 1)	2	**Lattices** 2.3 Lattices as Algebraic System.	K1-K5	1	CO1-5	Lecture, Discussions and Problem Solving	Questioning
Jan 3 – 7, 2025 (Day Order 3 to 6)	2	**Lattices** 2.4 Bounded, Complemented and Distributive lattices.	K1-K5	3	CO1-5	Lecture, Discussions and Problem Solving	Questioning
Jan 8 – 17, 2024 (Day Order 1 to 6)	2 3	**Lattices** 2.4 Bounded, Complemented and Distributive lattices (contd.) **Boolean Algebra** 3.1 Basic properties of Boolean algebra	K1-K5	4	CO1-5	Lecture, Discussions and Problem Solving	Questioning & Slip Test

Jan 18 - 23, 2025	**C.A. Test - I (UNIT 1 & 2)**						
Jan 24 -31, 2025 (Day Order 1 to 6)	3	**Boolean Algebra** 3.2 Representation Theorem 3.3 Boolean Expressions	K1-K5	4	CO1-5	Lecture, Discussions and Problem Solving	Questioning
Feb 3-8, 2025 (Day Order 1 to 6)	3	**Boolean Algebra** 3.4 Logic gates and circuits 3.5 Boolean function	K1-K5	4	CO1-5	Lecture, Discussions and Problem Solving	Questioning
Feb 10– 18, 2025 (Day Order 1 to 4)	4	**Finite State Automata** 4.1 Finite state machines	K1-K5	3	CO1-5	Lecture, Discussions and Problem Solving	Questioning
Feb 19- 26, 2025 (Day Order 1-6)	4	**Finite State Automata** 4.2 Finite state automata 4.3 Non-deterministic finite state automaton	K1-K5	4	CO1-5	Interactive Teaching & Problem Solving	Questioning & Slip Test
Feb 27- Mar 6, 2025 (Day Order 1 to 6)	4 5	**Finite State Automata** 4.4 Equivalence of DFSA and NDFSA **Languages and Grammars** 5.1Languages and Regular expressions.	K1-K5	4	CO1-5	Interactive Teaching & Problem Solving	**III Component-2** Assignment Sections 4.2 & 4.4 [10 marks]
Mar 7 – 11, 2025 (Day Order 1 to 3)	5	**Languages and Grammars** 5.2 Languages determined by FSA	K1-K5	2	CO1-5	Interactive Teaching & Problem Solving	Questioning
Mar 12 –17, 2025	**C.A. Test - II (UNIT 3 & 4)**						
Mar 18 – 20, 2025 (Day 4 to 6)	5	**Languages and Grammars** 5.3 Grammars	K1-K5	2	CO1-5	Interactive Teaching & Problem Solving	Questioning

Mar 21 - 28, 2025 (Day Order 1 to 6)	5	**Languages and Grammars** 5.4 Derivation trees for context free grammar	K1-K5	4	CO1-5	Interactive Teaching & Problem Solving	**III Component-3** Test Sections 5.1-5.3 [25 marks]
Mar 29- April 2, 2025 (Day Order 1 to 3)	**REVISION**						

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