Anjuman-i-Islam's

M. H. Saboo Siddik College of Engineering

8, Saboo Siddik Polytecnic Road, Byculla, Mumbai-8

Department of Computer Engineering

2025-26

Subject Code: ~~CSC302~~ 2113112 **Subject Name: Discrete Structures and Graph Theory** **SEM: III**

Blue Print for IAE-I (Information for Students)

Table 4: Course Objectives and Outcomes

Course Objectives	
CO1	Cultivate clear thinking and creative problem solving.
CO2	Thoroughly train in the construction and understanding of mathematical proofs. Exercise common mathematical arguments and proof strategies.
CO3	To apply graph theory in solving practical problems.
CO4	Thoroughly prepare for the mathematical aspects of other Computer Engineering courses.
CO5	Solve real-world problems using counting principles, recurrence relations.
CO6	Strengthen mathematical foundations for research and higher studies in Computer Engineering.

Course Outcomes	
2113112.1	Understand the notion of mathematical thinking, mathematical proofs and to apply them in problem solving using set theory and logic.
2113112.2	Apply properties of Relation sets in real-life problem-solving domains.
2113112.3	Apply properties of Function sets in real-life problem-solving domains
2113112.4	Apply counting principles, including the Pigeonhole Principle and Inclusion-Exclusion Principle, to solve combinatorial problems.
2113112.5	Apply algebraic structure for a given mathematical problem.
2113112.6	Apply graph theory in solving computing problems.

Table 5: Detail Syllabus Modules/ Topic for IAE-I

Module No.	Content/ Sub Modules	CO	No of Hrs in Syllabus	Marks Weightage	% of Syllabus	Marks Range [20-32]
1	**Crisp Set Theory and Logic**	1	08	50	22	10-16
	Set Theory: Sets, Subsets, Universal and Empty Sets, Set Operations, Set Representation, Laws of Set theory. **Logic:** Propositional Logic, Predicate Logic, Quantifiers (Universal and Existential). **Types of Mathematical Proof:** Direct proof, Proof by contradiction, Proof by deduction, Proof by cases, Proof by exhaustion, Proof by counterexample, Mathematical induction.					
2	**Mathematical Relations**	2	08	50	22	10-16
	Relations: Definition, Representation of Relations, Properties of Relations, Equivalence Relations, Equivalence Classes, Closures of Relations, Warshall's algorithm. **Posets and Lattice:** Partial Order Relations, Poset, Hasse Diagram, Chain and Anti chains, Lattice, Types of Lattices, Sub lattice.					

18/8/25

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