NAME OF THE SUBJECT	L	T	P	C
DISCRETE MATHEMATICAL STRUCTURES	3	1	0	4

UNIT I - MATHEMATICAL LOGIC & SET THEORY **(10 Hours)**

Propositional logic, Propositional Equivalence, Predicates and Quantifiers, Nested Quantifiers, Proof methods and Strategies, Sequences and Summations, Mathematical Induction, Recursive definition and structural induction.

UNIT II- RECURRENCE RELATION **(10 Hours)**

Recurrence relation, Solution to recurrence relation, Generating functions, Inclusion and exclusion, Relation and their properties, Closure of relations, Equivalence relations, Partial orderings.

UNIT III - BOOLEAN ALGEBRA & ALGEBRAIC SYSTEMS **(10 Hours)**

Algebraic systems, Lattices, Distributive and Complemented Lattices, Sub-lattices, Boolean Lattices and Boolean Algebra, Boolean Functions and Boolean Expressions.

Semi groups, Monoids, Groups, Subgrorups, Cosets, Lagrange theorem, Permutation groups, , Normal subgroups. Homomorphism, isomorphism.

UNIT IV- GRAPH THEORY **(10 Hours)**

Basic Definitions – Some Special Graphs – Matrix , Representation of Graphs -–- Paths and circuits - Eulerian and Hamiltonian Graphs – connected graphs, Planar graph, Graph coloring ,Trees - Spanning Trees - Rooted trees – Binary Trees, Minimum Spanning tree -Kruskal's algorithm , Prim's algorithm , Tree Traversal.

Prescribed Books:

1. Kenneth H. Rosen, "Discrete Mathematics and its Applications", Sixth Edition, 2008, Tata McGraw Hill Education, New Delhi

Reference Books:

1. C. L. Liu and D. Mohaptra, "Elements of Discrete Mathematics", Third Edition, 2008,
2. N. Deo, Graph Theory and Applications to Engineering and Computer Science, Prentice Hall of India
3. Discrete Mathematics by Schaum's Outlines(Second Edition)
4. Ralph P. Grimaldi, "Discrete and Combinatorial Mathematics", Fifth Edition, 2005,Pearon Education, New Delhi