**MA3701- DISCRETE MATHEMATICS**

Set Theory - sets and classes, relations and functions, recursive definitions, posets, Zorn - s lemma, cardinal and ordinal numbers; Logic - propositional and predicate calculus, well-formed formulas, tautologies, equivalence, normal forms, theory of inference. Combinatory - permutation and combinations, partitions, pigeonhole principle, inclusion-exclusion principle, generating functions, recurrence relations. Graph Theory - graphs and digraphs, Eulerian cycle and Hamiltonian cycle, adjacency and incidence matrices, vertex colouring, planarity, trees.

**References:**

1. J.P. Tremblay and R. Manohar, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw Hill, New Delhi, 2001.
2. C. L. Liu, Elements of Discrete Mathematics, 2nd Edn. Tata McGraw-Hill, 2000.
3. K. H. Rosen, Discrete Mathematics and its Applications, 6th Edn. Tata McGraw-Hill, 2007.
4. V. K. Balakrishnan, Introductory Discrete Mathematics, Dover, 1996.