

MA2060: DISCRETE MATHEMATICS

Course Content:

Sets and cardinality. Propositional logic, predicates and quantification, Methods of proof. Modular Arithmetic: Divisibility, modular arithmetic, prime numbers, induction proofs. Introduction to graphs: Graphs, paths, connectivity. Combinatorics: Counting, Binomial theorem and Bijective counting.. pigeonhole principle, inclusion-exclusion principle, generating functions and recurrences. Discrete Probability: Probabilistic counting (after introducing Probability, independence, random variables, expectation).

Text Books:

1. **Kenneth .H. Rosen**, Discrete Mathematics and its Applications, 7th Ed., McGraw Hill, 2012.
2. A walk through combinatorics - **Miklos Bona**, 4th edition. World scientific.

Reference Books:

1. Elements of Discrete Mathematics - **C L Liu, D Mohapatra**. 4th edition. Mcgraw Hill. 2017.

Prerequisite: