Course title: MS 8123 - Discrete Mathematics

Course Topics: subtopics

1. **Number Systems**: Decimals, binary, and hexadecimal number systems, applications in computer science.
2. **Sets:** Operation on Sets, Cardinality of the Sets, Laws of Algebra on Sets.
3. **Logic:** Propositional Logic, Logical equivalence, Predicates & Quantifiers, Logical reasoning. Membership, Statements, Logical Connectives, Truth Table, Laws of Algebra on Proposition, Arguments, Mathematical Proofs and Polynomials**.**
4. **Sequence and Series:**
5. **Functions**: One-to-one, Onto, Inverse, Composition, Graphs.,
6. **Counting**: Basic rules, Pigeon Hall principle, Permutations and Combinations, Binomial Coefficients and Pascal Triangle, Binomial Theorem and Expansion