

# Summary of Content

## Preliminaries

- Basic Logic and Number Systems
  - Statements, Connectives, and Truth Tables
  - Conditional Statements
  - Logical Equivalencies and Identities
  - Number Systems, Quantifiers, and their Negations

## Proof Techniques

- Deduction
  - Direct Proofs and Counterexamples
  - Proofs by Contrapositive and Contradiction
  - Proofs of Conditionals with Disjunctions
- Induction

## Mathematical Concepts

- Sets
  - Basic Concepts
  - Set Relationships
  - Set Operations
  - Indexed Sets
- Functions
  - Basic Concepts
  - Injections and Surjections
  - Inverses and Compositions
  - Cardinality
- Relations
  - Equivalence Relations
  - Equivalence Classes