

JIS College of Engineering
(NAAC 'A' Accredited Autonomous Institution)

Syllabus for COMPUTER SCIENCE ENGINEERING
2ND YEAR 3RD SEM

Paper Name: Mathematics-III

Paper Code: M (CSE) 301

Contact: 3L+1T

Credits: 4

Course contents

Module-I

Algebraic Structures: Introduction, Binary operation, Groups, Subgroups, Normal Subgroups, Cyclic Groups, Permutation and Symmetric groups, Group Homomorphism, Group Isomorphism, Definition and elementary Properties of Rings, Integral domain and Fields.

Module-II

Propositional Logic: Proposition, well formed formula, Truth tables, Tautology, Satisfiability, Contradiction, Algebra of proposition, Theory of Inference, Natural Deduction.

Predicate Logic: First order predicate, well formed formula of predicate, quantifiers, Inference theory of predicate logic.

Random Variables: Discrete, Continuous and Mixed Random Variables, Probability Mass Functions and Cumulative Distribution Functions, Mathematical Expectation, Binomial and Poisson distribution.

Module-III

Partial order sets: Definition, Hasse diagram, Special elements in Posets, Isomorphism of Posets.

Lattices: Definition, Principle of Duality, Properties of lattices, Bounded Lattice, Sub lattice, Some Special Lattice - Complete Lattice, Distributive Lattice, Complemented Lattice.

Number Theory: Divisibility theory, Greatest common divisor, Prime numbers, Composite numbers, Congruence, Residue system.

Module-IV

Advance Graph Theory: Planer graph, Dual graph, Chromatic, Chromatic polynomial and its determination, Applications of Graph Colouring. Matching: Definitions and Examples of Perfect Matching, Maximal and Maximum Matching.

Refernce Books:

1. Higher Algebra (Abstract and Linear) by S. K. Mapa.
2. Integral transform by MD. Raisinghania.
3. Graph Theory with applications to Engineering and computer science by Narsingh Deo.
4. Statistical Methods by N.G.Das.
5. A Text Book of Discrete Mathematics by Dr. Swapan Kr. Sarkar.