CS502 MATHEMATICS FOR COMPUTER SCIENCE 4-0-0-8

Pre-requisites :

Syllabus : Review of sets, functions, relations; Logic: formulae, interpretations, methods of proof inpropositional and predicate logic; Number theory: division algorithm, Euclid's algorithm,fundamental theoremof arithmetic, Chinese remainder theorem; Combinatorics: permutations, combinations, partitions, recurrences,generating functions; Graph Theory: isomorphism, complete graphs, bipartite graphs, matchings, colourability,planarity; Algebraic Structures: semigroups, groups, subgroups, homomorphisms, rings, integral domains,fields, lattices and boolean algebras; Linear algebra: system of linear equations, matrices, vector spaces, lineartransformations, Eigen vectors, diagonalization; Probability: conditional probability, random variables,probability distributions, Markov's inequality, Chebyshev and Chernoff Bounds.

Texts :

1. C L Liu, Elements of Discrete Mathematics, 2/e, Tata McGraw-Hill, 2000.

2. R C Penner, Discrete Mathematics: Proof Techniques and Mathematical Structures, World Scientific, 1999.

References :

1. R L Graham, D E Knuth, and O Patashnik, Concrete Mathematics, 2/e, Addison-Wesley, 1994.

2. K H Rosen, Discrete Mathematics & its Applications, 6/e, Tata McGraw-Hill, 2007.

3. J L Hein, Discrete Structures, Logic, and Computability, 3/e, Jones and Bartlett, 2010.

4. N Deo, Graph Theory, Prentice Hall of India, 1974.

5. S Lipschutz and M L Lipson, Schaum's Outline of Theory and Problems of Discrete Mathematics, 2/e, TataMcGraw-Hill, 1999.