Andhra Pradesh State Council of Higher Education
M.Sc. Computer Science Syllabus

MCS104:DISCRETE MATHEMATICAL STRUCTURES

UNIT - I

Mathematical Logic: Connectives, Wellformed Formulas, Truth Tables, tautology, Equivalence, Implication, Normal forms, Predicates, Free & bound variables, Rules of inference, consistency, Proof by contradiction, Automatic theorem Proving.

UNIT - II

Set Theory: Properties of binary Relations, Equivalence, Compatibility &Partial ordering relations, Hasse Diagram, functions, Inverse function, composition of functions, Recursive functions

UNIT - III

Algebraic Structures: Semi groups and Monoids, Groups, Homomorphism, group codes.
Lattices and Boolean Algebra introduction - lattices as partially ordered set, Boolean Algebra and Boolean functions

UNIT - IV

Graph Theory: Introduction - Basic concepts of graph theory, Isomorphism's and
Sub graphs, connected components, cyclic graph, Bipartite graph, planar graphs, eulers formula, euler's circuits, de bruijin sequence, hamiltonian graphs, chromatic numbers, cut set, tie set, the four color problem

Prescribed Books :

1. J.P.Tremblay & R.Manohar, "Discrete Mathematical Structures with Applications to computer science", - TMH
2. Joe L.Mott, Abraham Kande, Theodore P. Baker," Discrete Mathematics for computer scientists and Mathematicians – PHI

Reference Books:

1. Ralph P. Grimaldi, B.V. Ramana, "Discrete and Combinational Mathematics", 5th Edition, Pearson Education (2008).
2. Swapan Kumar Sarkar, "A Text Book of Discrete Mathematics",S.Chand (2008).
3. D.S.Malik and M.K.Sen, "Discrete Mathematical Structures",Thomson