JSS MAHAVIDYAPEETHA
JSS SCIENCE AND TECHNOLOGY UNIVERSITY
JSS Technical Institutions' Campus, Mysuru - 570 006

Department: Computer Science and Engineering	
Course title: Discrete Mathematical Structures	***Course Code:CS320***
Credits(L:T:P): 3:0:0	***Core/Elective: Core***
Type of Course: Lecture	***Total Contact Hours:39***
CIE Marks : 50	***SEE Marks: 100***

Pre-requisite: Previous basic mathematics

Course Outcomes: After completing this course, students should be able to:

CO1: Knowledge of the concepts needed to test the logic of the program.

CO2: Demonstrate the understanding of relations and able to determine the properties.

CO3: Perceive, construct and decode group codes based on the various methods.

CO4: Demonstrate different traversal methods for trees and graphs.

Unit No.	Course Content	No. of Hours
1.	**Fundamental of Logic:** Basic Connectives and Truth Tables, Logical Equivalence: The Laws of Logic, Logical Implication: Rules of Inference, The Use of Quantifiers, Quantifiers, Definitions and the Proofs of Theorems.	08
2.	**Relations:** Properties of relations, Computer Recognition: Zeros- One Matrices and Directed Graphs, Partial; orders: Hasse diagrams , Equivalence Relations and Partitions , Lattices.	08
3	Elements of coding theory and Hamming Metric, generation of codes using Parity check and Generator matrices.	08
4.	**Graph theory:** Definitions and Examples, Subgraphs, Complements, and Graph Isomorphism, Vertex degree, Euler trail and circuits, Planar Graphs, Hamiltonian Paths and cycles.	08
5.	**Trees:** Definitions, Properties and Examples, Rooted trees, trees and sorting weighted trees and prefix Codes.	07

Text Book:

1. Ralph.P.Grimaldi, B.V.Ramana, "Discrete and Combinatorial Mathematics", 5th Edition, Pearson Education -2009.

Reference Books:

1. Kenneth. H.Rosen, "Discrete Mathematical Structures Theory and Application", V Edition, PHI/Pearson, Education, 2004.

2. Kolman, Busby and Ross, "Discrete Mathematical Structures", Fourth Edition, Prentice –Hall of India Pvt Ltd-2009.

Note:

Students are informed to visit NPTEL website (http://nptel.ac.in) for additional information on the course.