PROGRAME NAME: **: B.A.(PROGRAMME)**
COURSE NAME : DISCRETE MATHEMATICS
SEMESTER DURATION: **JULY TO DECEMBER**

Week	**Topic(s)**	**Teaching Methodology Adopted/ Continous Internal Evaluation**
1	Definition, Examples and properties of posets	Lectures
2	Maps between posets, Algebraic lattice, Lattice as a poset, Duality principle, Sublattice	Lectures/Discussion
3	Hasse diagrams; Products and homomorphisms of lattices, Distributive lattice, Complemented lattice	Assignments/Quizzes
4	Boolean Algebra, Boolean polynomial, CN form, DN form	Presentations
5	Simplification of Boolean polynomials, Karnaugh diagram	Case Study
6	Switching circuits and its applications, Finding CN form and DN form	Demonstartion
7	Graphs, Subgraph, Complete graph, Bipartite graph	Lectures
8	Degree sequence, Euler's theorem for sum of degrees of all vertices	Discussion/Seminars
9	Eulerian circuit, Seven bridge problem, Hamiltonian cycle	Tutorials
10	Adjacency matrix, Dijkstra's shortest path algorithm (improved version)	Discussion

11	Digraphs	Lectures/Practicals
12	Definitions and examples of tree and spanning tree	Practicals
13	Kruskal's algorithm to find the minimum spanning tree	Case Study
14	Planar graphs, Coloring of a graph and chromatic number	Case Study

Course Objectives: Discrete mathematics is the study of mathematical structures that are fundamentally discrete rather than continuous. The mathematics of modern computer science is built almost entirely on discrete math, in particular Boolean algebra and Graph theory.

Course Learning Outcomes: The course will enable the students to understand:
i) The relation and partial ordering of sets.
ii) Various types of lattices, Boolean algebra and switching circuits with Karnaugh maps.
iii) Fundamentals of Graph theory, Spanning trees and four color map problem.