# HSCS105 DISCRETE MATHEMATICS (3-0-0)

Module I (10 Period)
logic: Proposition and logical operation, conditional statement, methods of proof, mathematical induction. Counting principle: permutation and combination, Principle of inclusion and exclusion, pigeonhole principle, recurrence relations.

Module II (10 Period)
Relations and diagraph: Properties of relations, Equivalence relations, closure properties of relations, Transitive closure by Warshall's Algorithm. Functions, Partially Ordered Sets, Hass diagram, lattice, finite Boolean algebra.

Module III (10 Period)
Graph theory: Graph, Euler Paths and Circuit, Hamiltonian Paths and Circuit, Planner Graphs, Coloring of graphs. Trees: Undirected Trees, Tree searching , Minimal Spanning trees. Single source shortest path.

Module IV (10 Period)
Groups: Binary operation, Semi groups, Groups and Subgroups, cosets and Lagrange's Theorem. Groups and Coding: Coding of binary information and error detection, Decoding and error correction.

Text Books

1. B. Kolman. R C Bosby. S Ross , " Discrete mathematical structure " PHI
2. C.L Liu , " Elements of Discrete mathematics" Mc Graw hill international
3. Kenneth H Rosen, "Discrete mathematics and its applications" , Mc Graw hill international.