GUJARAT TECHNOLOGICAL UNIVERSITY

M.E

Communication Engineering

Subject Name: **Computer Aided Design for VLSI**

Sr.No	Course content
1	Matrices: Linear dependence of vectors, solution of linear equations, bases of vector spaces, orthogonality, complementary orthogonal spaces and solution spaces of linear equations.
2	Graphs: representation of graphs using matrices; Paths, connectedness; circuits, cut-sets, trees; Fundamental circuit and cut-set matrices; Voltage and current spaces of a directed graph and their complementary orthogonality.
3	Algorithms and data structures: efficient representation of graphs; Elementary graph algorithms involving bfs and dfs trees, such as finding connected and 2- connected components of a graph, the minimum spanning tree, shortest path between a pair of vertices in a graph; Data structures such as stacks, linked lists and queues, binary trees and heaps. Time and space complexity of algorithms.

Reference Books:

1. K. Hoffman and R.E. Kunze, Linear Algebra, Prentice Hall (India), 1986
2. N.Balabanian and T.A. Bickart, Linear Network Theory : Analysis, Properties, Design and Synthesis, Matrix Publishers, Inc., 1981.
3. T.Cormen, C.Leiserson and R.A.Rivest, Algorithms, MIT Press and McGraw-Hill, 1990.