MANGALORE UNIVERSITY

DEPARTMENT OF ELECTRONICS

MSc Electronics

ELS 554 - VLSI DESIGN USING CAD

Unit-I

10 Hours

The Characteristics of Digital Electronic Design, Design Environments; Introduction,SystemLevel, Algorithm Level, Component Level, Layout Level. Representation; Introduction,General Issues of Representation, Hierarchy Representation, View Representation,Connectivity Representation, Geometry Representation.
Synthesis Tools; Introduction, Cell Contents Generation and Manipulation, Generators ofLayout Outside the Cells, Cells and Their Environment, Silicon Compilers, PostlayoutGenerators.

Unit-II

10 Hours

Static Analysis Tools; Node Extraction, Geometrical Design-Rule Checkers, Electrical-RuleCheckers, Verification, Dynamic Analysis Tools; Circuit-Level Simulators, Logic-LevelSimulators, Functional- and Behavioral-Level, Simulation Issues, Event-Driven Simulation,Hardware and Simulation.The Output of Design Aids; Circuit Boards, Integrated Circuits,Implementation Issues.

Unit-III

10 Hours

Programmability; Imperative Programming, Declarative Programming, Hierarchy.Graphics;IntroductionDisplay Graphics, Hardcopy Graphics, Input Devices, Human Engineering; Introduction, Task and User Modeling, Information Display, Command Language, Feedback. Electric; Introduction, Representation, Programmability, Environments, Tools, Designing aChip.

Text Books:

1. "Computer Aids for VLSI Design,"Steven M. Rubin, 2nd, 1994.
2. "Computer Design Aids for VLSI Circuits," P. Antognetti, D.O. Pederson and H. de Man, NATO ASI Series, MartinusNijhoff Publication, USA, 1980.

Reference Books:
1. Modern VLSI Design, Wayne Wolf, 3rd Ed, Prentice-Hall, 2002.

2. Genetic Algorithms: For Vlsi Design, Layout & Test Automation, P Mazumder and E M RUdniak, Pearson, 1999