

M.Tech(IT) : Group B
Paper Code : MT24B
Paper Title : VLSI Design

SYLLABUS

1. INTRODUCTION

Introduction to VLSI Systems, Evolution of VLSI, Design Hierarchy , CMOS Fabrication Technology and Design Rules, Process of Fabrication , The CMOS n-Well Process, Advanced CMOS Fabrication Technologies, Layout Design Rules , CMOS evolution story. Full-Custom Mask Layout System, CMOS Layout Design Rules, CMOS Inverter Layout Design, Layout of CMOS NAND and NOR Gates Complex CMOS Logic Gates

2. VLSI LOGICS

Parasitic Extraction and Performance Estimation from Physical Structure, Introduction, The Reality with Interconnections, MOSFET Capacitances Interconnect Capacitance Estimation, Interconnect Resistance Estimation The 1-bit Full Adder Enhancement Techniques for Adders, Multi operand Adders Multiplication, Addition and Multiplication in Galois Fields, GF(2ⁿ) Low-Power VLSI Circuits and Systems, Voltage Scaling, Estimation and Optimization, Reduction of Switched Capacitance, Adiabatic Logic Circuits

3. FUZZY LOGICS

Fuzzy Logic Systems, Systems Considerations, Fuzzy Logic Based Control Background, Integrated Implementations of Fuzzy Logic Circuits, Digital Implementations of Fuzzy Logic Circuits, Analog Implementations of Fuzzy Logic Circuits, Mixed Digital/Analog Implementations of Fuzzy Systems CAD Automation for Fuzzy Logic Circuits Design, Neural Networks Implementing Fuzzy Systems

4. APPLICATION OF VLSI

VLSI For Multimedia Applications - Case Study: Digital TV, VLSI for Telecommunication Systems, Comparison Between Different Switching Techniques, ATM Networks.

Reference Book:-

Wayne Wolf, "MODERN VLSI DESIGN: SYSTEM-ON-CHIP DESIGN", Tata Mc Graw Hill