VLSI 6 Months Diploma Program
Details visit www.eikontech.net

Fundamentals of Digital Electronics

Introduction

Digital Numbering System

Boolean Algebra and Logic theorems

Algebraic Manipulation

Digital Gates

Boolean Fn. Simplification

Digital Design Techniques

Combinational Logic

Sequential Logic

Moore & Mealy Model

Combinational Logic Elements

Sequential Logic Elements

Advanced Digital Systems

Arithmetic Elements

Logical Elements

Memory Devices

Read Only Memory

Random Access Memory

Finite State Machine

Advance Digital Concepts

Digital Practical Lab Session

Work with Basic Gate ICs

Work with Sequential & Combinational Circuits

Work with Memory Elements

Simple PCB Design

CMOS Fundamentals

History of Transistors

BJT Vs FET

MOS technology

Tupes of MOS

Need of CMOS
IC Trends in Real World
CMOS Transistor Theory
CMOS Characteristics
Layout & Stick Diagrams
Charge Storage Mechanism
Processing Steps
Fabrication & Design Rules
Latest Trends in CMOS

Programmable Logic Design

Introduction
Programmable Array Logic
Programmable Logic Array
Generic Array Logic
Standard Logics
FPGA
SPLD
CPLD
ASIC
Semi Custom ASIC
Full Custom ASIC

Introduction about VLSI

Integration Techniques
Need of PLDs
FPGA Vs ASIC
FPGA Vs CPLD
VLSI Design Flow
Design Entry
Behavioral Simulation
Synthesis
Implementation
Timing Analysis
Back Annotation

ASIC

Design

- Planning
- Languages: VHDL, Verilog, System Verilog
- Simulation
- Synthesis Tool

Verification

- Methodologies OVM, UVM, RVM
- Environment
- BFM Concepts
- Monitor & Checker
- Functional Coverage
- Languages: Verilog, System Verilog, Specman (e), Vera, System C

Fabrication Techniques

VHDL for Design

Introduction

Code Structure

Data Types

Operators

Sequential Statements

VHDL syntax & Example Programs

Verilog HDL For Design

History of Verilog

Typical Design Flow

Modeling Techniques

User Defined Primitives

Verilog Operators

Procedural Timing Control

Task & Functions

Parameterized Modules

Assertions in Verilog

Compiler Directives

Verilog Quick Reference

Example Codes

Oops Concepts & Randomization

Classes & Objects

Data Encapsulation

Polymorphism

Dynamic & Static Arrays

C type data types- int, typedef, struct, union, enum

Dynamic data types- struct, classes, dynamic queues& arrays

Semaphores

Mailboxes

event extensions

Assertions

Random Variables

Constraint Blocks

System Verilog For Design, Verification

Introduction

Verilog Basics

Literal Values

Data Types

Operators and Expressions

Procedural Statements & Control Flow

Processes

Task & Functions

Inter Process Communication

System Verilog Assertions

System Verilog Hierarchy

System Verilog Interfaces

Example Programs

Advanced Verification Languages

OVM/UVM/VMM/RVM

Specman

Vera

System C

EDA Tools Work out

Synthesis Tool

- Xilinx ISE
- Modelsim

Practical lab Session

Xilinx SPATAN 3E Development Board

- Experimental Approach
- Mini Projects

Xilinx CPLD Development Board

- Experimental Approach
- Mini Projects

Linux Environment

Components

Structure

Utilities &Commands of UNIX System

Gvim Editor Operating System

- Red Hat
- Cent-OS
- Obuntu

Scripting Languages

Perl

- Introduction
- Types of data
- Operators
- Variables & Special Variables
- Lists & Hases
- Loops & Decisions
- Regular Expressions
- Function Reference

Python

- Introduction
- Numeric types
- Character string basics

- Sequence types
- Dictionaries
- Branching
- Defining Functions
- Python Modules

Linux Practical Lab Session

Work with Linux Environment