

# VLSI DESIGN

## Six Months Online Summer training program

VLSI Design Techniques are the central pillar of most of the present research in industrial and commercial activities in Electronics Engineering. This training program focuses on specific circuit design techniques using Xilinx Vivado Design Suite and using Cadence EDA tools. It also focuses on embedded system design based on 8051 Microcontroller using Kiel  $\mu$ Vision.

The main objective of this training program are as follows: -

- To expose the participants to various modelling, simulation, and design techniques, applied to contemporary problems in the field of VLSI Design and Embedded Systems.
- To train the Engineers and faculty members with latest software and hardware.
- To provide a forum to exchange and stimulate new ideas.

**Duration:** 06 Months

## Training Program Content

### Introduction to digital circuits and VHDL

- Introduction to VLSI Design flow
- Introduction of VHDL concepts and constructs
- Use of VHDL design units which include entities, architectures, packages, and configurations.
- Various Modeling styles and Data types
- Concepts of Concurrent Statements
- Use of When-else and With-select statements
- State Machines
- Advanced Design issues: Metastability, Noise Margins, Power, Fan-out, Timing considerations

### CMOS Introduction

- Introduction to MOS Technology and Fabrication Process Flow
- CMOS Logic
- MOS Inverters: Switching characteristics and Interconnect effect
- Introduction to layout and simulation tools
- Place and Route Extraction, LVS
- Netlist to GDS-II flow
- CMOS layout design
- Design layout of CMOS Inverter, CMOS NAND, and CMOS NOR

## Digital System Design using FPGAs

- Introduction to Xilinx FPGA Kit
- FPGA Based Design Flow
- FSM based Modelling of Digital Circuits

## Embedded System Design

- Introduction to Microcontroller and Microprocessor.
- Embedded System interfacing and programming of 8051 Microcontroller.
- Application development using Keil  $\mu$ Vision.

## Project work using Simulation Tools

### Registration Details

There are limited seats for 100 participants in the training program which would be filled on first come first serve basis.

Rs 10,000 (INR)	Registration Deadline: <b>20-06-2021</b> Participation Confirmation: <b>30-06-2021</b>
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### How to Apply

Fill the Google Form on the given link

<https://forms.gle/dRQeFvRai3nyfkvT6>

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