

## Certificate Course in VLSI Design

### Objective of the Course:

This course aims to providing detailed knowledge in VLSI design process starting from digital design, hardware descriptive languages, RTL, synthesis & simulation, verification, FPGA programming & implementation. In this process the student will understand the entire logic design process and will be able to take on the challenges posed by the even demanding chip design industry.

### Learning Outcome:

After the end of the course the student will be able to complete a significant VLSI design project having a set of objective criteria and design constraints.

### Duration of the Course: 6 Weeks

### Minimum Eligibility Criteria:

Pursuing Engineering Degree [ECE/EEE/CSE/AEI]

## COURSE OUTLINE

<b>Sr. No.</b>	<b>Modules to be Covered</b>
1	Advanced Digital Design Review
2	Hardware Description Language (Verilog HDL)
3	FPGA Architecture and Prototyping

# **Detailed Course Syllabus:**

## **1. Advanced Digital Design Review**

- Combinational Circuit Design
- Sequential Circuit Design
- Design of controller and Data path units
- Design Examples & Case Studies

## **2. Hardware Description Language (Verilog HDL)**

- Introduction to Verilog HDL & Hierarchical Modeling Concepts
- Lexical Conventions & Data Types
- System Tasks & Compiler Directives
- Modules, Ports and Module Instantiation Methods
- Modeling methods.
- Design Verification using Test benches

## **3. FPGA Architecture and Prototyping**

- Introduction to Programmable Logic and FPGAs
- Architecture of popular Xilinx and Altera FPGAs
- FPGA Design Flow
- Implementation Details
- Logic Synthesis for FPGA
- Static Timing Analysis

## **4. Project**