

VLSI Chip Design: Sand to Silicon
Duration 2 weeks (4 December, 2024 to 17 December, 2024)

Course Content

Week 1:

1) Introduction to VLSI and Digital Design Basics

- Basics of Digital Logic Design
- Introduction to VLSI Chip Design and Design Methodologies

2) VHDL/ Verilog and Basic CMOS Technology

- Introduction to VHDL/Verilog for VLSI Design
- Basics of CMOS Technology
- CMOS Layout Design Fundamentals
- Lab Sessions on VHDL/Verilog and CMOS Basics

3) Combinational Logic and Sequential Logic Design

- Combinational Logic Design
- Sequential Logic Design
- Lab Sessions on Combinational and Sequential Design

Week 2:

4) VLSI CAD Tools and RTL Design

- Introduction to VLSI CAD Tools
- Register Transfer Level (RTL) Design
- Hands-on Lab with CAD Tools and RTL Design

5) Physical Design and Testing Techniques

- Introduction to VLSI Physical Design
- Testing and Debugging in VLSI
- Lab Sessions on Physical Design and Testing

6) Specialized Topics and Final Project

- Low-Power Techniques in VLSI

Introduction to ASIC and FPGA Design