National Institute of Electronics & Information Technology
Gorakhpur – Extension Centre Lucknow
(Ministry of Electronics and Information Technology, Government of India)
MMMUT Campus, Deoria Road, Gorakhpur-273010
http://www.nielit.gov.in/gorakhpur/

VLSI Design

VLSI Design using Cadence Tool

4 Weeks In-Campus Course

Duration: - 4 Weeks (40 Hours)
Batch Size: 20
Medium of Instruction: Bilingual (English & Hindi)

Objective

The course on VLSI Design using CADENCE Tool offered by NIELIT Gorakhpur will introduce the participants to the basics of VLSI Design flow. It will help the participants to understand the concepts through hands-on lab sessions, examples and assignments on CADENCE Tool.

Eligibility

B.E. - B.Tech. / B.Sc. - M.Sc. / 3-Years Diploma pursuing or qualified in Electronics or Electrical or Instrumentation or Computer Science or Equivalent

Prerequisites

Candidate must have knowledge of basic electronics, digital & electrical circuits

Course Fees

Rs. 4720/- incl. GST & all other charges.

Certificate

Certificate will be provided to the participants, based on minimum 75% attendance and on performance (minimum 50% marks) in the online test, conducted at the end of the course.

Methodology

- ✓ Instructor-led offline classes.
- ✓ Instructor-led hands-on lab sessions on CADENCE Tool.
- ✓ Content Access through e-Learning portal.
- ✓ Assessment and Certification

How to Apply?

Step-1: Read the course structure & course requirements carefully.

Step-2: Visit the Registration portal (https://regn.nielitvte.edu.in/) and click on apply button.

Step-3: Create your login credentials and fill up all the details, see the preview and submit the form.

Step-4: Login with your credentials to verify the mobile number, email ID and then upload the documents, Lock the profile and Pay the Fees online, using ATM-Debit Card / Credit Card / Internet Banking / UPI etc.

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Course Content

VLSI Design using CADENCE Tool Duration: 20 Days (40 Hours)	
Module-1 (4 Weeks)	
Day-01	**Introduction to VLSI Design** • Historical Perspective. • VLSI technology trends performance measures and Moore's law comparisons of technology trends. • System approach to VLSI Design. • Future Trends in CMOS VLSI Circuits and system design.
Day-02	**VLSI Design Cycle** • ASIC Design Flow. • System Specification, Fundamental Design, Logic Design. • Circuit Design, Physical Design, Design Verification. • Fabrication, Packaging, Testing and Debugging. • Introduction to Cadence tool.
Day-03	**Basics of Analog Circuits-1** • Design and Analysis of RC circuits. • Timing issues in RC Circuits. • Filter Implementation of RC Circuits.
Day-04	**Basics of Analog Circuits-2** • Operation Amplifiers Fundamentals. • Design and Analysis of feedback amplifiers. • Filter Implementation of Op-Amps.
Day-05	**Fabrication Process and Layout Design Rules-1** • Introduction to fabrication Process. • General Aspects of CMOS Technology.
Day-06	**Fabrication Process and Layout Design Rules-2** • CMOS Inverter Fabrication Process. • Layout Design Rules.
Day-07	**Analog CMOS Design-1** • Basic of MOS Device Physics. • General Concepts on Level of Abstraction. • General Concepts on Robust Analog Design.

Day-08	**Analog CMOS Design-2** • Way of designing fast CMOS Circuits. • Design of Single Stage Amplifier. • Analog Layout and Design Concepts.
Day-09 & Day-10	**Analog CMOS Design-3** • Performance Analysis of an Amplifier. • Transfer characteristics and Amplifier Gain. • Effect of Amplifier BW limitations on Analog Signal Processing.
Day-11 & Day-12	**Digital CMOS Design-1** • CMOS Inverter Basics. • Inverter Transfer Characteristics. • Inverter sizing.
Day-13 & Day-14	**Digital CMOS Design-2** • Inverter Design. • Transfer Function & Frequency Response. • Characterization for various inputs and timing analysis.
Day-15 & Day-16	**Combination Circuit Design-1** • Digital CMOS implementation of Full Adder Circuit. • Output Verification. • Timing and Power Analysis.
Day-17 to Day-19	**Combination Circuit Design-2** • Digital CMOS implementation of 4-bit Multiplier Circuit. • Output Verification. • Timing and Power Analysis.
Day-20	**Concluding Session** • Presentation & Reports. • Feedback & Quiz.

Course Coordinator
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CLICK HERE FOR REGISTRATION

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