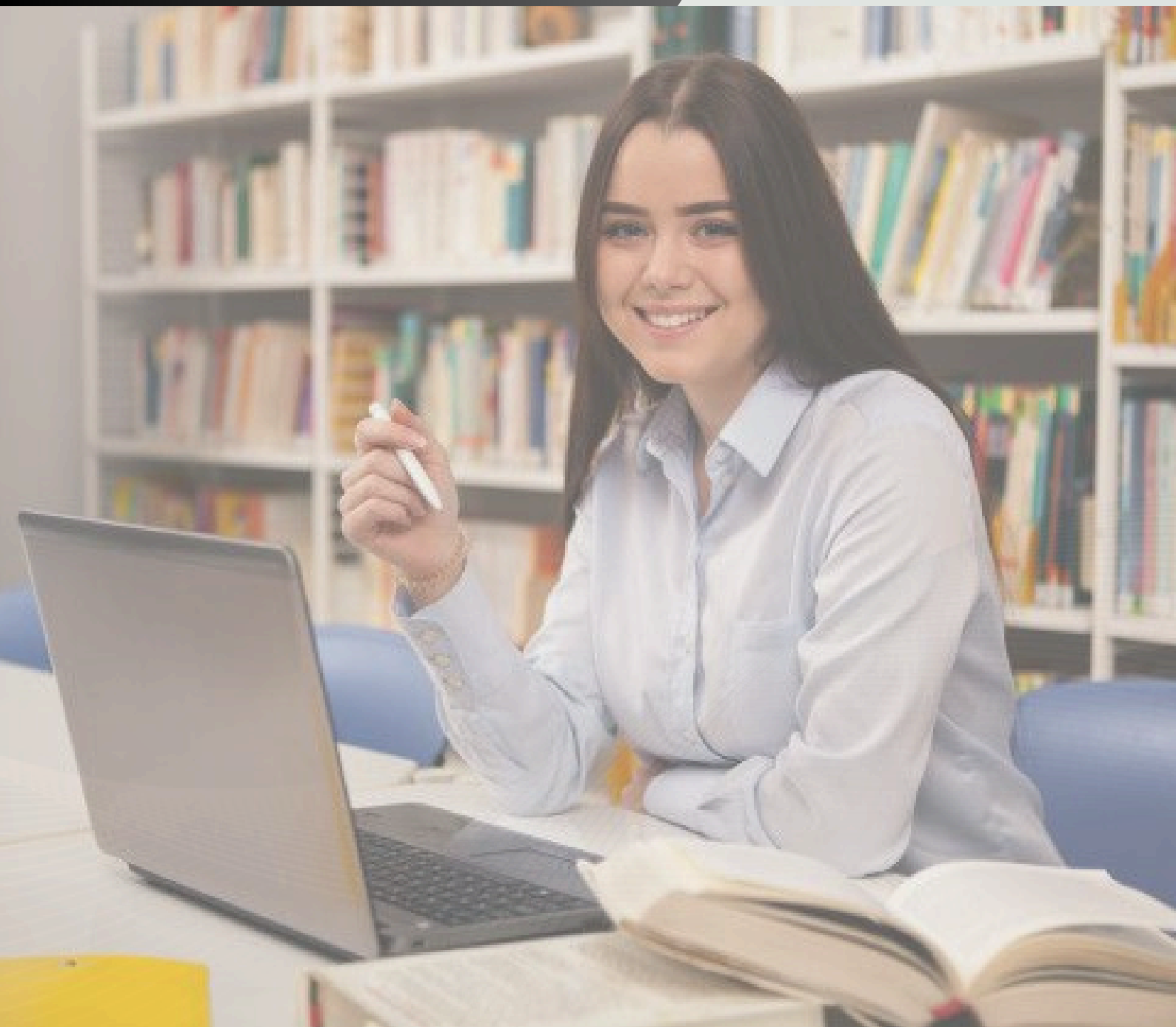




Skillup Bharat

Training | Placements | Outsourcing

VLSI & IOT



About Company

SkillUp Bharat is a leading platform that offers technical and non-technical courses designed to prepare students for industry challenges.

We provide internships, hands-on training, and placement opportunities, ensuring learners gain practical experience through real-time projects. Our programs focus on enhancing both technical and soft skills, making students job ready.

WHY TO CHOOSE US!

- 1. Industry-Relevant Courses**
- 2. Hands-On Internships**
- 3. Real-Time Project Experience**
- 4. Placement Support**

VSLI & IOT Syllabus :

Irrespective of any domain

Description

The VLSI & IoT course by Skillup Bharat is designed to equip students with the knowledge and skills needed to excel in the semiconductor and embedded systems industries. The course covers the essentials of VLSI (Very Large Scale Integration) design, introducing students to CMOS technology, digital circuit design, and FPGA-based implementation using Verilog/VHDL. Additionally, it provides hands-on experience with industry-standard EDA tools like Cadence and Synopsys, enabling students to design, simulate, and optimize complex circuits.

On the IoT side, the course dives deep into the architecture, protocols, and components that make up the Internet of Things. Students will learn how to program microcontrollers and interface with sensors and actuators, allowing them to build real-world IoT applications. Topics like wireless communication protocols (Wi-Fi, Bluetooth, ZigBee) and cloud platforms (AWS IoT, Google Cloud IoT) are also covered, enabling students to understand how data is transmitted and managed across IoT networks.

The course culminates in two capstone projects: one focusing on VLSI design and another on creating a complete IoT system. These projects allow students to apply the concepts they've learned and develop practical, industry-relevant skills. By the end of the course, students will be well-prepared for roles in semiconductor design, embedded systems, and IoT development.

Expectations and Goals

- Proficiency in VLSI Design
- Expertise in IoT System Development
- Hands-on Experience
- Industry-Ready Skillset
- Understanding of Security Measures
- Technical Proficiency
- Practical Application
- Analytical Skills
- Networking and Industry Connections

Complete VSLI & IOT Bootcamp2024

Course Syllabus:

Module 1: Introduction to VLSI and IoT

- VLSI Design Flow Overview
- CMOS Technology Basics and Fabrication
- IoT Architecture, Devices, and Ecosystem
- Embedded Systems Basics for IoT

Module 2: Digital Design and Microcontroller Programming

- Boolean Algebra, Logic Gates, and Combinational Circuits
- Sequential Circuits: Flip-Flops, Counters, and Registers
- HDL Programming (Verilog/VHDL) for Digital Design
- Microcontroller Architecture (ARM/AVR/ESP)
- Embedded C Programming for IoT Devices
- Interfacing Sensors and Actuators with Microcontrollers

Module 3: VLSI Design Tools and FPGA Implementation

- Introduction to EDA Tools (Cadence, Synopsys)
- Circuit Design, Simulation, and Layout
- Synthesis, Timing, and Power Optimization
- FPGA Architecture and Design Flow
- Verilog/VHDL Programming for FPGA
- Implementing Digital Circuits on FPGA

Module 4: IoT Communication and Cloud Integration

- Wireless Communication Protocols
- IoT Networking and Advanced Protocols
- Cloud Platforms for IoT
- Data Communication and Device Management in IoT

Module 5: Analog VLSI Design and IoT Security

- MOS Transistor Theory, Amplifiers, and Filters
- Analog-to-Digital (ADC) and Digital-to-Analog Converters (DAC)

- **Security Challenges in IoT Networks**
- **Cryptographic Protocols for Secure IoT Communication**
- **Implementing Security in IoT Devices and Data Transmission**

Module 6: Capstone Projects

- **VLSI Capstone Project:**
 - **Design and Implementation of a Digital Circuit (FPGA/ASIC)**
 - **Synthesis, Timing Analysis, and Power Optimization**
- **IoT Capstone Project:**
 - **Complete IoT System Design (Sensors, Gateway, Cloud Integration)**
 - **Data Analytics and Security Measures in IoT System**



CONTACT US!



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A close-up photograph of two hands shaking in a firm grip. The hand on the left is wearing a dark blue suit sleeve, and the hand on the right is wearing a light-colored, patterned shirt sleeve. Below the hands, a laptop is visible on a wooden desk, slightly out of focus. The background is a bright, blurred indoor setting with large windows.

THANK YOU

**Master New Skills, Unlock
New Opportunities!**