

PCB Design

Offline | Hybrid | Online

Academic qualification for this course:

B.Tech /M.Tech with min 70 % through out in
ECE /EEE/VLSI



Cadence Tool
Lab Support



Placement
Assistance



1:1 Mentoring

PinE Training Academy

PinE Training Academy (Training Division of Aujus Technology Private Limited -Enabling VLSI Design) was established in 2014 by technocrats having expertise and vast work experience in the field of ASIC Design, FPGA, DSP, Real-Time Embedded System Design, and Board PCB.

For more info, visit - <https://pinetrainingacademy.in/>

Hiring Partners

SYNOPSYS®



cādence®

KEENHEADS

CIRCUIT SUTRA
TECHNOLOGIES



SIEMENS



“At PinE Training Academy, my vision has always been to help electronics students move beyond theoretical learning and **develop the practical skills** required by the industry.

Having worked closely with students and companies for years, **I have seen the gap between academic education and real engineering roles.**

PinE was built to bridge that gap — by providing structured learning, strong fundamentals, and guided career pathways so that **students can confidently step into core engineering careers.**”

- Vaibhav Mishra
(Founder & CEO)

To know more about our CEO, visit <https://www.linkedin.com/in/vaibhav-mishra-1b01951/>

Top 5 reasons to choose PinE Training Academy

1. 100% Placement Support

PinE provides 100% placement assistance to the eligible trainees of the job-oriented programs and keeps supporting them till they get a job after course completion. Our primary objective is to help electronics engineers successfully build a career in the semiconductor /VLSI Industries. We work closely with various VLSI products & services companies and identify the right opportunities. Most of our students have been successfully placed in reknowned semiconductor companies.

2. VLSI courses delivered by industry experts

PinE Training Academy is a leading VLSI and Embedded training institute that delivers industry-standard, high-quality VLSI programs. Our courses are designed by experienced industry experts, aligned with real job opportunities and long-term career growth in the semiconductor sector. We continuously update our VLSI curriculum to match the latest industry trends.

3. Excellent Teaching Methodology

Our training methodology is unique, enabling students to master even complex technologies in a short time and build true expertise. Around 70% of the course is dedicated to hands-on labs, mini projects, and a final project. These programs help you develop the in-demand technical skills needed to secure a job in the semiconductor industry.

4. 1:1 Support

PinE Training Academy provides 1:1 mentoring and round-the-clock online support. Trainees also get 24/7 lab access to strengthen their technical skills and can join group discussions to learn and share insights. In addition, business communication sessions and mock interviews help build the professional skills needed to succeed in the workplace.

5. Flexible Payment & Financial Support

- Merit-Based Scholarship Program
- Interest-Free Monthly Installments
- Education Loan from NBFC Partners
- Auto-Debit Facility

EDA Partner



Get trained on Cadence industry grade tools and showcase your knowledge confidently in your interviews.

COURSE CURRICULUM

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13 modules

OS- Linux Ubuntu | EDA Tool - Cadence

1. Hardware Digital Design

- Project 1: Hardware Design of 4 4-bit Sign Calculator.
- Calculator Components like: Adder, Subtractor, Multiplier, Divider, Comparator, Mux, Demux, Encoder, Decoder, 2s Complement, etc.
- Project 2: Hardware Design of a 4 4-way traffic light control system.
- Traffic Light Components: Latch, SR Latch, JK latch, JK FF, DFF, TFF, counters (Synchronous, Asynchronous, UP- Down, Odd –Even, Mod, Johnson & Ripple, Shift Registers (SISO, SIPO, PISO & PIPO)
- Project 3: Hardware Design of different LED patterns & Implementation on FPGAs.

2. Introduction of Analog Flow

- Introduction of network elements and their properties.
- Understanding the fundamentals of KCL, KVL, Source Transformation, Resistance equivalent, Star to Delta and Delta to star transformation, and it's numerical.
- Understanding of Theorems like Thevenin, Norton, Superposition and Maximum Transfer Theorem and it's numerical.
- Understanding of RC circuit with different sources.
- Introduction of Electronic Device circuit.
- Semiconductor material and its properties, Basic information of Doping, Diffusion, Conductivity, Mobility of material and more.
- Working of the Diode and its numerical values based on the application.
- Introduction of Bipolar Junction Transistor and its region of operation in terms of numerical values.
- Circuit designing on tools and analysis like DC analysis, Power analysis, Transient analysis, Temperature effect, Corner frequency and more.

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- MOS fabrication steps and the difference between MOSFET and BJT.
- MOSFET properties and their numerical values.
- Circuit designing on tools and analysis like DC analysis, Power analysis, Transient analysis, Temperature effect, Corner frequency and more.

3. Basic of Electronics Components

- Introduction to Embedded Systems
- Embedded System and its applications
- Design Parameters of an Embedded System and its significance
- Embedded System Design Flow.
- Analog and Digital Design Basic.
- Analog Signal Processing.
- Current/ Voltage concepts
- Resistors
- Capacitors
- Inductors
- Circuit Theory
- Diodes
- Transistors
- FET
- Op-Amps (LM324/358 , ULN 2803/2003)
- Oscillators (555)
- Switches
- Relays
- 7 segment
- 14/16 segment
- Motors
- Basic Electronics Components Testing
 - Breadboard
 - Multimeter
 - CRO

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4. Tool Installation & Environment Setup

- This module introduces the Cadence PCB design ecosystem. Learners understand the difference between OrCAD Capture and Allegro PCB Editor, system requirements, license models, and folder structures. Proper environment setup ensures smooth schematic and layout flow without tool errors.

5. Hardware Circuit Design Basics

- This module explains what hardware circuit design is and how it differs from PCB layout and system architecture. It covers the role of a PCB design engineer in product development and explains how requirements transform into a working electronic circuit.

6. OrCAD Capture & Allegro Overview

- Learners explore OrCAD Capture for schematic entry and Allegro PCB Editor for layout design. This module explains file formats, data flow between tools, and how schematic decisions impact PCB layout quality.

7. Hardware Flow Diagram

- This module teaches how to create block-level hardware flow diagrams. Students learn to divide a system into functional blocks, identify power and signal flow, and prepare a strong foundation before schematic design.

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8. PCB Fundamentals

- This module covers PCB basics, including layer types, materials, copper thickness, via structures, and manufacturing concepts. Understanding these fundamentals helps designers choose the right board structure for reliability and cost.

9. Symbol & Footprint Creation

- Learners gain in-depth knowledge of creating schematic symbols and PCB footprints. Emphasis is placed on datasheet interpretation, pin mapping, padstack design, IPC standards, and avoiding common library mistakes.

10. Schematic Design Process

- Learners explore OrCAD Capture for schematic entry and Allegro PCB Editor for layout design. This module explains file formats, data flow between tools, and how schematic decisions impact PCB layout quality.

11. PCB Layout Design Process

- Students learn the complete PCB layout flow, including board outline creation, stack-up planning, constraint management, component placement, routing strategies, and post-layout verification. Focus is given to power integrity and EMI-aware routing.

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12. Manufacturing Data Creation

- This module explains how to generate and verify manufacturing outputs such as Gerbers, drill files, pick-and-place data, and assembly drawings. Students learn how these files are used by fabricators and assemblers.

13. Final Data Review & Checklist

- The final module focuses on PCB release readiness. Learners perform final DRCs, schematic–layout consistency checks, footprint verification, power and signal review, Gerber inspection, and formal PCB release with version control.

Note- The Institute has full right to select the modules as per the requirement of the industry and also depend on the duration of the batch without affecting the course fees

Course Information

New batch starts every

January

April

July

October

Course Duration

- Offline - **6 months**
- Hybrid - **10 months**
- Online - **12 months**

Course Fees

The fees will vary for different modes-online, hybrid and offline and can range between INR 40k + tax

Scholarship

The scholarship will be given based on the entrance test.

Score 90% or above - **40% scholarship**

Score 75% or above - **20% scholarship**

Prerequisite for Entrance Test: Basic Knowledge of Analog & Digital Design Fundamentals



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