unacademy

Post Graduate Program in Electrical & Electronics Engineering

Upskilling for the 21st Century

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About Unacademy

Classroom education in India has stifled many brilliant minds. With Unacademy, India's largest education platform, we are changing that. In a span of 6 years, 62+ million Learners have benefited from live online lessons and specialized resources from the best Educators in the country.

With over 5 million monthly active users from 10k+ cities in India, we are impacting the lives of people in the farthest corners of the country. We have on board 50k+ Educators teaching in 14 languages to help our Learners crack various competitive examinations.

Our success stories include thousands of students who have cracked the toughest of examinations, improved their ability to speak and write better and expand their knowledge.

Our vision is to partner with the brightest minds and have courses on every possible topic in multiple languages so the whole world can benefit from these courses. India is home to 19% of the world's youth and we are empowering them to take on the world in a manner that classrooms will never do.

Why Become a Electrical & Electronics Engineer

Electric Vehicles. Wireless Technology. VLSI. Semiconductor Industry. Fabrication. Military Defense. Internet of Things.

Everywhere you look, India is pushing the boundaries of innovation and emerging as a world-respected manufacturer of equipment. This decade is going to be all about building our manufacturing base and becoming a global hub for the highest quality products and businesses. Our Make in India initiative, designed to make us Atmanirbhar, will generate millions of new jobs for skilled Electrical & Electronics engineers.

However, there is a large gap between what industries expect from new recruits and the skillsets aspiring engineers possess after completing a bachelor's degree in engineering. This gap has widened in the last two years and restricted opportunities for coveted core engineering jobs based on one's college, specialization, or connections in the industry.

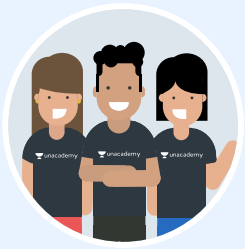
We believe that Learners need a bridge course that will enable them to develop industry-ready skills and secure jobs in top core engineering roles. The future of India's growth will be built on the base of the world's largest youth population under the age of 35. We have an incredible opportunity to become part of the next Industrial revolution and contribute to making our nation a global superpower.

Why Unacademy Core Engineering?

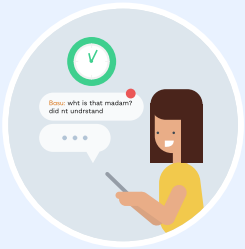
Unacademy offers a complete value offering to help you crack your dream core engineering role.

Plus Benefits

300+ hours of recorded content



Best-in-class Educators with deep industry expertise



Weekly Doubt-Solving classes

Industry-relevant projects

Masterclasses with Industry Veterans

15+ Hours of Content on Cracking Engineering Interviews

Community of like-minded professionals

Certificate of Completion

Iconic Benefits

Internship Assistance

Placement Assistance

1:1 Mentorship

1:1 Doubt Solving

Why Unacademy Core Engineering?

- Quizzes & Assignments
- Clear each module's test to become eligible for Unacademy's internship and placement opportunities.
- Nation-wide technical & skill competitions
- Test yourself against a pan-India audience on real industry problems.
- Certificate of completion
- Earn a certificate after completing every module, as well as the full course.
- Interview preparation assistance
- High-quality videos covering everything you need to know about interviews.

Is This For You?

Unacademy's core engineering program is relevant for the following audience: -

- A third-year or final-year Learner aiming to crack a technical role in a core engineering company.
- A fresh graduate (no experience) looking for employment in the core engineering.
- A recent graduate (1-2 years of experience) looking to switch roles within the core engineering domain.
- A third-year or final-year Learner looking to build a live project portfolio to apply to universities abroad.

Weekly Class Schedule

With Unacademy, you can attend classes at any time during the week based on your availability. It's completely up to you!

Our recommendations for Learners are below: -

- **Monday** - Core sessions
- **Tuesday** - Core sessions
- **Wednesday** - Core sessions
- **Thursday** - Core sessions
- **Friday** - Project Work
- **Saturday** - Masterclass/Special Event + Project Work + Doubt solving session
- **Sunday** - Project Work + Doubt-solving sessions

Classes By Experts

Vishwas Vaidya

AGM -Tata Motors

Mudit Mittal

Technology Director - BlueKei Solutions

Harinder Singh

Technical Manager - Thermofisher Scientific

Shivangi

Head - The Royal Solution

Learn From Industry Leaders

Dr. Vrince Vimal

IPR Head - Graphic Era Hill University, IIT Roorkee

Amit Jain

General Manager-Autometers Alliance Ltd

Daksh Sethi

Founder - Nice Try Interview Academy

EEE 101

Fundamentals of Electrical & Electronics Engineering

15 HOURS

1. **Digital Logic Design (Basics) (Theory +Auto Graded Quiz)**
   Introduction, Binary Arithmetic, Number System, Boolean Logic, Karnaugh Maps, Assignment
2. **Digital Logic Design (Advanced) (Theory +Auto Graded Quiz)**
   Introduction, Finite State Machine, Combinational Circuits, Sequential Circuits, Assignment
3. **MOS Device Physics (Theory +Auto Graded Quiz)**
   Introduction, MOSFET Structure, Electrical Characterstics of MOSFET, Assignment
4. **System Design**
   Introduction, Embedded C Fundamental, Programmable Logic Devices, ARM Micro Controller, Debugging, Assignment
5. **Introduction To Sensors**
   Introduction ,Sensor Design and Networking, IOT and Sensor, Assignment
6. **Board Design**
   Introduction, PCB Design Basics, Multilayer Board Design, Thermal Analysis, Signal Integrity, Assignment
7. **Recent Trends**
   Introduction, Case Study 1, Assignment

EEE 102

Matlab + Simulink

25 HOURS

1. Learning Installing the software
2. MATLAB Environment Setup
3. MATLAB Syntax
4. MATLAB Plotting
5. MATLAB Printing
6. MATLAB M-5
7. Design and validate a system in SIMULINK

EEE 103

LT-Spice

20 HOURS

1. Learning Installing the software
2. Learn to create schematics
3. Learn to perform a circuit analysis
4. Learning how to stimulate behaviour
5. Creating your own spice model

EEE 104

XILINX

20 HOURS

1. Learning Installing Xylinx
2. Creating a new Project
3. Creating an HDL Source
4. Designing Simulation
5. Creating Timing Constraints
6. Implementing design and verify constraints
7. Downloading Design to a development board

EEE 105

VLSI + IC from Silicon to Package

90 HOURS

1. **Introduction**
   VLSI Design, Simulation, Modelling
2. **CMOS Digital VLSI Design**
   Digital circuit block design and simulation
3. **CMOS Analog VLSI Design**
   Analog circuit block design and simulation
4. **CMOS Mixed-Signal Design**
   Analog and Digital circuit block design and simulation
5. **System Design using VHDL and Verilog**
   Verilog and VHDL modeling
6. **Digital System Design**
   Combinational and Sequential circuit design
7. **System Verification**
   Functional Verification Process and Architecture
8. **FPGA System Design**
   Conception, design and implementation using FPGAs

EEE 105

VLSI + IC from Silicon to Package

90 HOURS

9 **Static Timing Analysis**

STA,DTA, Timing Arcs, Unateness,- Delays in Digital Circuits

10 **Microcontroller System Design**

Conception, design, and implementation using Microcontrollers

11 **Data Convertors**

A/D and D/A design and implementation

12 **Digital signal processing (DSP)**

Digital filter design

13 **Machine Learning in EDA**

Circuit design cost optimization using Machine Learning in EDA

14 **Post Silicon Validation**

Hardware/software electrical and speed validation

15 **VLSI Testing**

Fault Modeling and Simulation

16 **Statistical Machine learning for Circuit Simulation**

Constraints optimization using linear regression

EEE 106

Embedded Systems

50 HOURS

1. **Overview Of Embedded System**

   Embedded System, Embedded System Application, Evolution of Embedded System

2. **Brief Structure of Embedded Systems**

   Characteristics of Embedded Systems, Comparison of Embedded Systems with general-purpose processors

3. **Embedded System & Product Development Lifecycle**

   Typical Product Development Lifecycle, Technology landscape, and roadmap

4. **Microprocessor & Microcontroller Classification**

   Difference between Microprocessor & Microcontroller, Classification based on architecture

5. **Registers & Memory of AT89C51**

   Description of RAM, Description of CPU Registers, Functions of SFR

6. **Introduction of EMBEDDED C**

   Introduction to Embedded C, Difference between C & Embedded C, Programming style

7. **Constants, Variables & Data Types**

   Keywords & Identifiers, Data type & its memory representation, Arrays and strings

EEE 106

Embedded Systems

50 HOURS

8 **Operators**

Types of Operators, Bitwise Operators

9 **Functions**

why Functions, Types of Functions, Multifunctional program, Return values & their types

10 **Introduction To Software**

Keil Compiler

11 **Interfacing of LED**

Introduction of LED, Interfacing Circuit Description of LED, Programming of LED's Interfacing

12 **Interfacing of Seven Segment Display**

introduction to 7 Segment Display, Types of 7 Segment Display, Programming of 7 Segment Display Interfacing

13 **Interfacing of LCD**

Introduction to 16 x 2 LCD, Commands of 16 x 2 LCD, Interfacing Circuit Description of 16 x 2 LCD

14 **Interfacing of Switches & Keyboard Matrix**

Introduction to Interfacing of Switches & Keyboard Matrix, Programming of Keyboard Matrix & Switches

EEE 106

Embedded Systems

50 HOURS

15 **Timers & Counters Programming**

Introduction to Timers & Counters, Difference between Timer and Counter, Programming of Timers & Counters

16 **Serial Communication Programming**

Introduction to Serial Communication, Types of Serial Communication, Description of SFR associated with Serial Communication, Programming of UART

17 **Interfacing Of ADC**

Introduction to ADC, Programming of ADC

18 **Sensor Interfacing**

Introduction to sensing devices, Interfacing of IR Sensors, Interfacing of Temperature Sensor

EEE 107

IoT + Robotics + AI + Machine Learning

50 HOURS

1. Introduction to IOT
2. Hardware in IOT
3. Software in IOT
4. RTOS
5. Arduino Programming
6. VLE
7. NODEMCU / ESP8266
8. MQTT
9. RASPBERRY PI

EEE 108

Fundamentals of Electric Vehicle

12 HOURS

1. **Electrical Fundamentals**

   Introduction, Ohm's Law, Kirchoff's Law, Thevenin's theorem, Assignment

2. **Electronics Fundamentals**

   Introduction, Diode Fundamentals, Transistor Fundamentals, MOSFET &IGBT Fundamentals, Assignment

3. **Fundamentals of Vehicle Dynamics**

   introduction, Torque, Work and Power, Vehicle Motion and Friction, Equations of Vehicle Dynamics

4. **Basics of Automotive Engineering**

   introduction, Vehicle Specifications, and Basic Terminology, Basics of Internal Combustion Engines

5. **Fundamentals of Automotive Electricals and Electronics**

   Introduction ,Starting and Charging Systems, Sensors and Actuators, Comfort and Convenience and Saftey

EEE 109

Electric Vehicle - EE & ECE

38 HOURS

1. Electric and Hybrid Vehicle Architecture
2. Motors and Controllers for Electric Vehicles
3. Battery and BMS for EV
4. Control System for Evs
5. Charging and Infrastructure for EV
6. Testing and Validation for EV

EEE 110

Next Gen : Electives of EV

6 HOURS

1. Electric, Connected, and Autonomous Vehicles
2. Fuel Cell Vehicles
3. Power Electronics for EV

Interview Readiness Program

30 HOURS

1. **Fundamentals of Interviews**

   Interview Basics, Understanding Key Interview Concepts and Types Of Interviews

2. **Pre-Interview Prep**

   Research, QnA prep and Optimizing CV

3. **Engineering a Confident Body Language**

   Position and Posture, Engaging Eye-Contact, Mastering Language and Overall Personality Development

4. **Building Rapport**

   Understanding Employer's Perspective, Interpret Interviewer's Body Language,

5. **Interview PRO**

   Ace Networker, Mastering the top 20 interview questions, Common Interview Mistakes, Questions you should ask during the interview

6. **LinkedIn Profile Upgrade**

   Creating a stand-out LinkedIN profile, Job Alerts, Projects and Certifications, Getting your foot in the door, Making the right Connections

unacademy

Specializations

Upskilling for the 21st Century

PGP in Electric Vehicle Design

PGP Specialization 1

310 HOURS

1. Fundamentals of Electrical & Electronics Engineering
2. VLSI: Mastery & Essential Concepts
3. Embedded Systems
4. Electric Vehicles for Electrical & Electronics Engineers
5. LT Spice
6. MATLAB & Simulink
7. Wireless Communications & Networks
8. XILINX Programming using Vivado
9. Hybrid Electrical Vehicle

PGP in VLSI & Embedded Systems

PGP Specialization 2

265 HOURS

1. Fundamentals of Electrical & Electronics Engineering
2. VLSI: Mastery & Essential Concepts
3. Embedded Systems
4. LT Spice
5. MATLAB & Simulink
6. XILINX Programming using Vivado
7. Internet of Things

Capstone Projects

Unacademy will provide opportunities for Learners to solve real business problems faced by major engineering companies.

Capstone Sample Projects

Raspberry pi Drone.

IoT Smart City

Monitoring sensors data via SMS using GSM/GPRS module

LoRa communication Project - Transmitting and receiving data upto 10 km

Course Details

Duration of the Course	12 MONTHS
Commitment Required	15-20 HOURS A WEEK

What are you waiting for?

Enroll Now