



# VLSI

# About Us

InternsForge is the bridge that takes you from books to the on-field application of any and everything you want to learn. You should be trained to apply all your learnings in the real world right from the start. This not only makes your learning process a lot more fun but sets you apart from the dense competition through your exceptional skills from our holistic learning approach.



“We're not here to just teach;  
we're here to transform”

**30,000+ Students Turned Industry-Ready Professionals**

**4.5+ Star rating on Google from 325+ Happy customers**

**Have our presence in over 4000+ colleges including top IITs, IIMs, NITs, IIITs etc**

**Students from InternsForge are working in Top MNCs like IBM, Accenture, Innodata, Cognizant etc**



## What is VLSI ??

VLSI (Very Large Scale Integration) is a process used in electronics to create integrated circuits (ICs) by combining thousands to millions of transistors onto a single chip. It is a critical technology that powers modern electronic devices, including smartphones, computers, and other digital systems.

VLSI is a backbone technology that drives innovation in digital electronics and plays a vital role in shaping modern computing and automation.

## Scope of VLSI ??

Congrats!! 🎉  
You just made a great  
choice



## Did You Know ??

- The demand for **VLSI (Very Large Scale Integration)** professionals remains robust, particularly in industries like semiconductor manufacturing, consumer electronics, telecommunications, automotive, and artificial intelligence. Companies require skilled individuals who can design and develop efficient, high-performance integrated circuits and chips to meet the increasing demand for advanced technology.
- The VLSI industry is experiencing rapid growth, driven by factors such as the expansion of IoT devices, the rise of 5G technology, advancements in artificial intelligence, and the push for energy-efficient and compact electronic solutions. As devices become smaller and more powerful, the need for skilled VLSI professionals to innovate and meet these challenges is on the rise.
- VLSI has a rich history, emerging in the late 20th century as a revolutionary step in semiconductor technology. Despite being a mature field, it remains a cornerstone of modern electronics, continually evolving with technological advancements and playing a vital role in shaping the future of computing and digital transformation.

# Are We Really Different ??

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‘This is NOT a Course, This is a Commitment’

*The internet is full of online courses- free as well as paid, college students have access to top professors and high quality study materials.*

*Still our unemployment ratio continues to grow.*

*At the same time, the stress and worry faced by today's college students reach the sky!*



“ Now it's time to leave all your worries up to us and experience a transformed way to learning ”



# 4 Gaps That We Fill for You

## 1 Learn From Your Idols

- **Learn from Your Idols Currently Working At Your Dream Jobs**

You are already getting trained by top quality college professors, now time to cover the gap between theory and actual industry work. Get trained by professionals working at your dream jobs, get inspired, get guided, and get ready to reach your dreams.

- **Interactive-Live Classes**

90% of the students never finish the online courses they enroll in. Get ready of an entirely different experience, where you learn while interacting with your mentors in a motivational environment where you can't wait for the next session. Get Inspired! Get Going!



## 2 Certifications

- **Course Completion Certificate & Project completion certificate in collaboration with E-Cell IIT Indore**

At the end of course you will get some time to submit your project report. After submission of your project report you will get a course completion certificate and project completion certificate in collaboration with E-Cell IIT Indore.

- **Internship certificate from our partnered companies :**

We have some of our partnered Companies like Datex, Corevo, Smart swift Innovation etc which operates in different type of technologies. You will get a chance to work on some live-projects from these companies and after the completion of project and submission of project report; you will be awarded with an internship certificate from these companies.





# 3 Experience Working on Live Industry Level Projects

- **4 Live Industry Level Projects**

There is a humongous difference between learning from your classroom, books, notes vs. having industry experience where you know the current industry demands and are an expert at fulfilling those demands.

At InternsForge we make sure that your learning runs parallel to the applications of your learning, i.e right from the start till the end you are consistently applying everything you are learning in form of 4 main projects that are going on in the current industry



- **Projects Assigned and Guided by Industrial Mentors**

Since the purpose of this program is to get you industry ready. You will be assigned projects through your mentors who are working in the industry. You get to work on the projects that are highest in demand as per the industry requirements of the time you are taking the course.

You get consistent guidance from your mentors with additional doubt clearing sessions as per your demand for the smooth running of your projects.



# ROADMAP

## Introduction Webinar

Between 20 to 25th of the month, you will have your introduction webinar where you will get expert insights on the scope of the subject and your growth graph with the selected career.

## Orientation Session

Within the first week of initial payment you will have your first orientation session where you will get an in-depth introduction to our process.

## 2 Months of Intensive Training

Then we will start your 25+ hrs of intensive training. Where we make sure you are industry-ready.

## During 2 Months of Intensive Training

During your training the following will be covered:

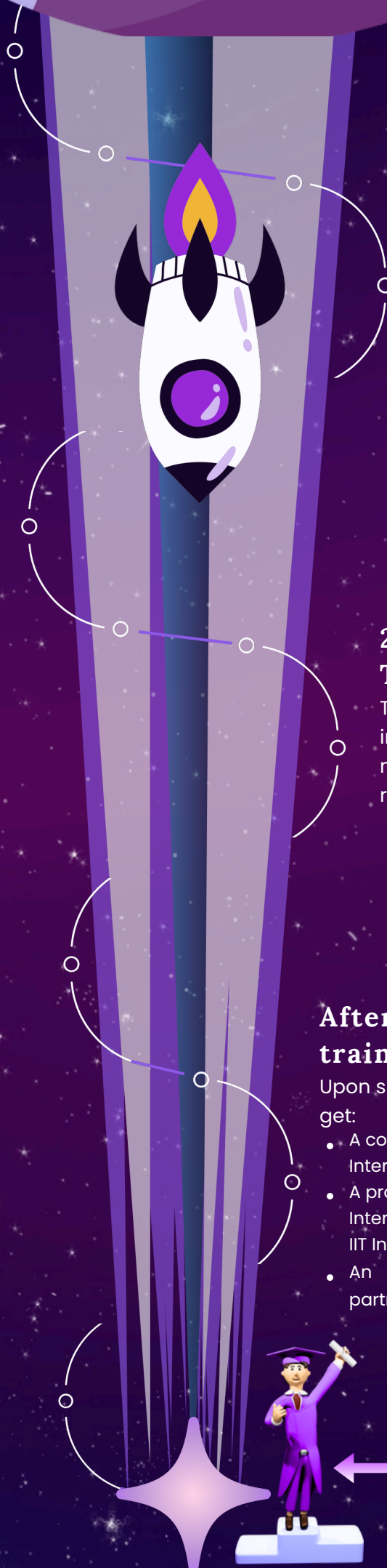
- 25+ hrs of interactive-live sessions with industry experts
- 2 Industry Level Projects

## After Completion of training:

Upon submission of project report You will get:

- A course completion certificate from InternsForge
- A project completion certificate from InternsForge in collaboration with E-cell of IIT Indore
- An internship certificate from our partnered companies

“The best version of you all set to conquer your Dreams”



# Curriculum

## MODULE 1

### ***Introduction to VLSI:***

- ***What is VLSI?***
- ***History and significance***
- ***VLSI applications in industry***
- ***VLSI design flow overview***
- ***Tools used in VLSI design (EDA tools)***



## MODULE 2

### ***Digital Electronics Fundamentals:***

- ***Number systems and Boolean algebra***
- ***Logic gates and truth tables***
- ***Combinational vs. Sequential logic***
- ***Basic circuits: adders, multiplexers, flip-flops***



## MODULE 3

### ***CMOS Technology Basics***

- ***Introduction to MOSFETs (NMOS & PMOS)***
- ***CMOS inverter characteristics CMOS logic***
- ***gate design (NAND, NOR, etc.)***
- ***Power dissipation and delay***





# Curriculum

## MODULE 4

### ***Verilog/VHDL Basics:***

- *FHDL overview and applications*
- *Verilog/VHDL syntax and data types*
- *Modules, ports, and assignments*
- *Writing simple combinational logic*



## MODULE 5

### ***Sequential Logic in Verilog/VHDL:***

- *Flip-flops and latches in HDL*
- *Finite State Machines (FSMs)*
- *Writing and simulating counters, registers*
- *Testbenches for sequential designs*



## MODULE 6

### ***RTL Design and Verification:***

- *Register Transfer Level (RTL) modeling*
- *Behavioral vs Structural design*
- *Simulation using tools (e.g., ModelSim)*
- *Debugging and waveform analysis*



# Curriculum

## MODULE 7

### **Synthesis Concepts :**

- ***From RTL to gates: Logic synthesis***
- ***Setup and hold times, critical path***
- ***Timing analysis basics***
- ***Area vs speed vs power trade-offs***



## MODULE 8

### **FPGA Architecture and Design :**

- ***Introduction to FPGA structure***
- ***Differences between ASIC and FPGA***
- ***Toolchain overview (Vivado, Quartus)***
- ***Simple design implementation on FPGA***



## MODULE 9

### **ASIC Flow Introduction :**

- ***ASIC design flow overview***
- ***Floorplanning, placement, routing (basics)***
- ***Standard cell libraries***
- ***Fabrication process overview***

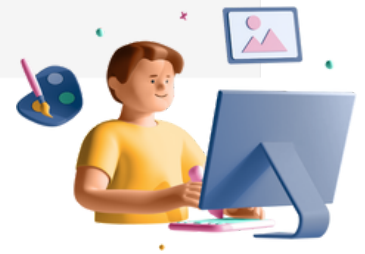


# Curriculum

## MODULE 10

### ***Major Project and Review***

- ***Major project (e.g., 4-bit ALU, traffic controller)***
- ***Design, simulate, and synthesize***
- ***Project report preparation***
- ***Feedback and internship completion***



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# THANK YOU

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