



## M.TECH. VLSI

School of Computing and Electrical  
Engineering

CAREER & PLACEMENT  
CELL



Indian  
Institute of  
Technology  
Mandi

Placement Brochure 2023-24



*Dr. Anirban Sarkar*

## **Statement of the PFG CHAIR**

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*The primary goal of the MTech VLSI program at IIT Mandi is to mentor students in microelectronics and VLSI in order to help the VLSI industry and academics.*

*The MTech in VLSI program at IIT Mandi lasts two years, comprising one year of course study and one year of thesis work. IIT Mandi's VLSI group has a strong faculty in analog, digital, mixed signal, RF circuit design, FPGA-based system design, neuromorphic circuits, semiconductor device modeling and fabrication.*



## ABOUT THE PROGRAMME

The M.Tech. in Very Large Scale Integration (VLSI) is being offered in the School of Computing and Electrical Engineering (SCEE) since August 2016. The M.Tech. VLSI programme at IIT Mandi is designed for students to acquire theoretical and practical knowledge in the domain of VLSI design, tools and technology. The curriculum covers various core/elective courses on chip designing with hands-on training on EDA tools such as Cadence, Mentor Graphics, Synopsys and Xilinx Vivado & ISE design suites. The curriculum also covers the device/fabrication aspects with hands on fabrication experience on class 100 and 1000 fabrication facilities at IIT Mandi.

## HOW IS THIS PROGRAMME DIFFERENT?

### EXPERIMENTS/PRACTICAL BASED LEARNING

In order to prepare the students for product development by the end of first year, courses like Digital IC Design & Practicum, Analog IC Design, Microelectronics and Embedded Systems are included in the curriculum.

### VERY STRONG INDUSTRY ORIENTED CURRICULUM

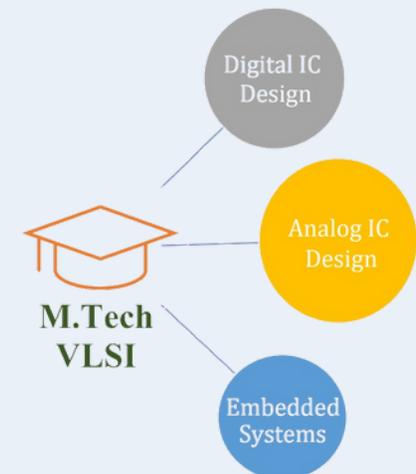
Chip designing EDA tools (Cadence, Mentor Graphics, Synopsys, Xilinx, Sylvaco, Centaurus and Comsol) based learning. These tools are the latest one and used in all the VLSI industries.

### LEARNING DESIGN AS WELL AS FABRICATION ASPECTS OF THE CHIP

Class 100 and 1000 clean room facility available at IIT Mandi for device fabrications.

## WHY HIRE FROM IIT MANDI?

- IIT Mandi ranked #33 in NIRF 2023.
- IIT Mandi has outstanding faculty from prestigious universities in India and overseas.
- Teaching and research coexist at IIT Mandi, complementing each other.
- 6 Batches have successfully graduated and a number of our students have been working with leading Tech Giants.



Specializations offered

## COURSES OFFERED

### Core

- Digital MOS LSI Circuits
- CMOS Analog IC Design
- Microelectronics Devices and Modelling
- VLSI Technology

### Dept. Elective

- Digital VLSI Architecture
- Mixed Signal VLSI Design
- Embedded Systems
- Reconfigurable Computing
- Selected Topics in Low Power VLSI Design
- Microwave Integrated Circuits

## LABORATORY COURSES

- CMOS Digital IC Design Practicum
- VLSI Fabrication Practicum

## M.TECH. PROJECT

- Duration: 1 Year

## INTERNSHIP

- Duration: 1 Year

## OBJECTIVES OF THE PROGRAMME:

After undergoing this program, the students will acquire both theoretical knowledge and practical skills in Electrical Engineering with specialization of VLSI and chip designing. The curriculum is supported with the advance learning courses of VLSI specialization in device level understanding, design, fabrication and tools. For a better insight of the specialization, the core laboratories for VLSI design and fabrication have been designed with considering experimental understanding of the specialization core courses. The laboratory experiments will build the basic concepts and the advanced concepts for chip designing. In summary, the overall two years of M.Tech. equips students to meet the challenging needs of industry for the present as well as next generation.

## LABS & FACILITIES

### EDA Tools:

- Cadence Design Suite
- Synopsys Design Suite
- Mentor Graphics Design Suite
- Xilinx Vivado & ISE Design Suite
- COSMOL Multiphysics

### Fabrication:

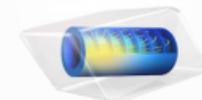
- Clean Rooms: 400 sq.ft Class 100, 1000 & 10000
- Lithography: Optical UV/DUV, MASKLESS, EBL
- Thin Film Deposition Systems: RF/DC Sputtering, Chemical Vapour Deposition (CVD, PE-CVD), Thermal Evaporator, Spin Coater
- Annealing Systems: Three-Zone Furnace, Oxidation/Diffusion Furnace

### Computer Systems:

- Linux OS based computer.
- Cloud servers for remote access of EDA tools.



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## FACULTY



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## PLACEMENTS & INTERNSHIPS

Graduates of this program are currently placed in different MNCs and R&D labs such as:

- Intel
- Synopsys
- AMD
- Texas Instruments
- Cadence
- Qualcomm
- STMicroelectronics
- Nvidia
- Western Digital
- NXP Semiconductors
- RedPine Labs
- Logic Fruit Technologies
- Others

## Ph.D.

Apart from the industries some of the students also got admitted to world renowned universities or institutes like University of Delaware, KAUST SA, IIT Delhi, IIT Bombay, IIT Roorkee for PhD in Electrical Engineering.

## PLACEMENT RECORD:

As the significance of electronic devices in our daily lives remains undeniable, the demand for VLSI technology continues to thrive. Students enrolled in this course have successfully secured positions or received job offers from renowned semiconductor companies. These opportunities span across a range of specialized roles, including R&D Engineer, ASIC Digital Design Engineer, Post Silicon Validation Engineer, Digital Design Engineer, SoC Design Engineer, Silicon Design Engineer, A&MS Circuit Design Engineer, and more. This growing trend towards employment in prominent semiconductor companies highlights the students' enhanced technical expertise and proficiency in these specific job roles.



## **FACULTY ADVISOR (M.TECH. VLSI)**

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