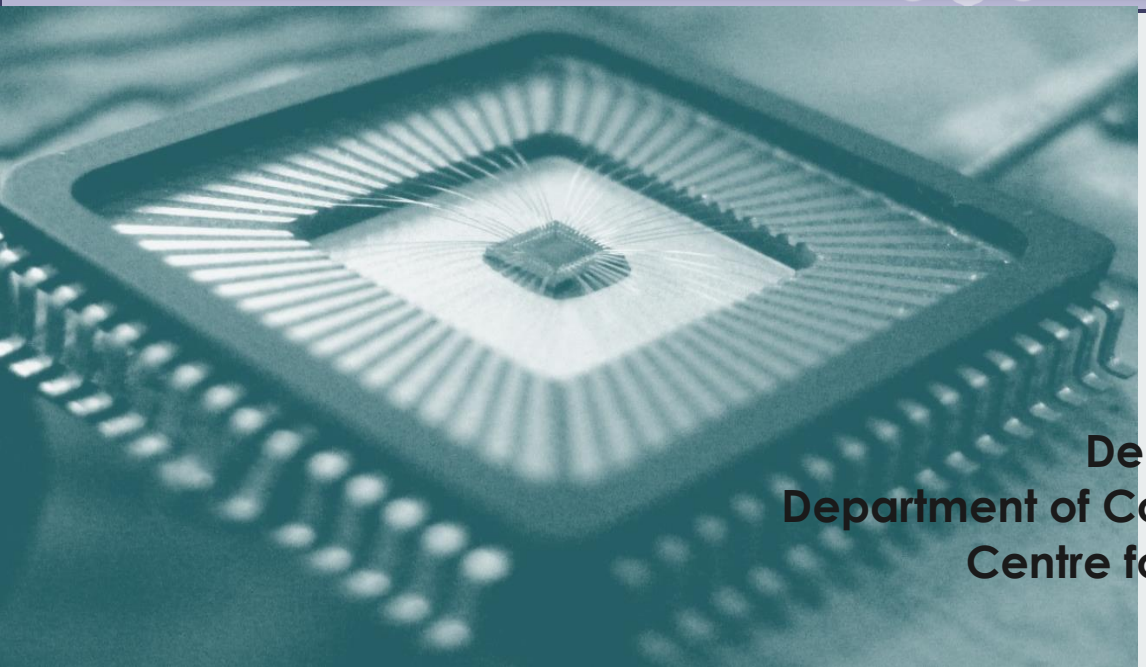
VLSI

Placement Brochure 2018 -19

INDIAN INSTITUTE OF TECHNOLOGY DELHI



http://vdtt.iitd.ernet.in/

Department of Electrical Engineering
Department of Computer Science and Engineering
Centre for Applied Research in Electronics

The VDTT M.TECH Programme

The VLSI Design, Tools, and Technology (VDTT) M.Tech. program at IIT Delhi is one of the most sought after Masters programmes in the country. It is one of the few programmes worldwide that only admit students sponsored by an industry or a research project. Each student has a co-supervisor from the sponsor and can do half of the final year project at the sponsor's site. Typical GATE cutoffs for the admission interview have been in the **99.5** percentile or higher range.

Students in the programme choose one of three streams. The first is focused on **analog** and **digital design**; the second on **machine learning** and **IoT**; the last on **sensors, devices, and nanotechnology**. VDTT students registering for placement have completed their core courses and need to take a few electives and complete their dissertation project. Many students have taped out custom ASICs and SOCs. The diversity of courses and the fact that these students form a very select band at the top of GATE examinees makes them a very sought after talent pool. Not only VLSI majors, but startups, leading **analytics** and **computational finance** organizations, and industries in the telecom sector have made offers to VDTT students in past years. Some VDTT students have started their own ventures, while others have done so after a few years.

Professor Jayadeva
VDTT Programme Coordinator

Courses

Program Core

- MOS VLSI design

Program Electives

- Advanced Data Structures
- High Performance Computer Architecture
- Flexible Electronics
- Introduction to MEMS Design
- Photovoltaics
- Quantum Electronics

- Active and Passive Filter Design
- Issues in Deep Submicron VLSI Design
- CAD for VLSI, MEMS, and Nanoassembly
- CMOS RF IC Design
- Embedded Intelligence
- Special Module in Low Power IC Design
- Special Module in VLSI Testing
- Numerical Optimization
- Architectures and Algorithms for DSP Systems
- CAD of RF and Microwave Circuits
- RF and Microwave Active Circuits

ASIC and SoC Design

- Synthesis of Digital Systems
- System Level Design and Modelling
- Digital System Design Laboratory
- Mixed Signal Circuit Design
- Analog Integrated Circuits
- Semiconductor Memory Design

Micro and Nano Devices

- I.C. Technology
- Micro and Nanoelectronics
- Micro and Nano Photonics
- Advanced Semiconductor Devices
- Compact Modeling of Semiconductor Devices
- Electronic and Photonic Nanomaterial

Embedded Intelligent Systems

- Advanced Topics in Embedded Computing
- Reconfigurable Computing
- Advanced Digital Signal Processing
- Neuromorphic Engineering
- Introduction to Machine Learning
- Energy-Efficient Computing

Resources

Laboratories

- VLSI Design Lab (EE)
- VLSI Design Lab (CSE)
- Digital Hardware Design Lab
- Data Analytics and Machine Learning Lab
- VDTT Lab

Tools and Design Software

- Cadence Design suite
- Synopsys Synthesis Tools
- Mentor Graphics Catapult C Synthesis
- Mentor Graphics IC Nanometer Design Tools
- MAGMA Physical Design Tools
- ATLAS device simulation framework
- Xilinx Foundation Series

Library

- IITD Central Library
- VDTT Library

Fabrication Facilities

- IC Fabrication and Testing facility at the CARE for 3 micron technology

Past/Ongoing Industrial Collaborations/ Projects

- Intel, Cadence Design Systems, Texas Instruments, STMicroelectronics, IBM, Freescale, EADS, Calypto Design Solutions, Cypress Semiconductors, NXP Semiconductors, Synopsys, SiRF, Philips Research Netherlands, National Semiconductors, Nokia Research Germany.

Placements Brochure

Projects Undertaken by Students as part of Academic Courses

1. RISC based 32-bit general purpose processor.
2. Low power 8Kb SRAM design in 90nm.
3. Worked on advansace data structures like 2-3 trees, red-black trees, shortest/longest path algorithms.
4. Low Output Impedance Variable Gain Amplifier.
5. Design of optimized time constrained scheduling algorithm.
6. Frequency synthesizer for Digital Storage Oscilloscope.
7. Designed Branch Predictors, Trace Caches and non volatile memories in Tejas Architectural simulator.
8. Verification of AMBA bus model using System Verilog.
9. 900 MHz All Digital Phase Locked Loop.
10. Designing a pipe-lined MIPS simulator.
11. Intelligent usage of DSP48 hardmacro to implement FFT with optimized area and high performance.
12. Content Addressable Memory with 8b input, 32b output and 2K address locations in 90nm technology.
13. Power amplifier with PAE 30-40% at 2.4GHz.
14. Developing Support Vector Classification & Support Vector Regression in C, CUDA & on FPGA.
15. Extending Simplescalar simulator for a pipelined multi-issue architecture.
16. Design of 2.4 GHz frequency synthesizer.
17. Support Vector Machine based A/D Converter.
18. Ant Colony Optimization based Distributed Router
19. RTL implementation of Built in Self Test & Repair for 64Kb memory.
20. X band Voltage Controlled Oscillator.
21. Designed Victim Caches in Sniper simulator.

Recruitment Process

Companies that wish to participate in the recruitment at IIT Delhi will be required to indicate the profile, preferred skill set and approximate Cost To Company (http://tnp.iitd.ac.in/). Based on this information, all the participating companies will be given slots beginning from Dec 1st. Companies can choose to give a pre-placement presentation, based on which students will opt for a company of their choice. Companies will then be allowed to shortlist from the resumes of the interested students and conduct tests and interviews for these students. The procedure is left to the company's choice. All facilities and logistics for the recruitment will be arranged by the students here at IIT Delhi. Please refer attached letter for complete procedure.

Past Recruiters

- Intel
- NVIDIA
- Cisco
- Texas instruments
- Cadence Design Systems
- Synopsys
- Analog Devices
- IBM
- AMD
- Cypress Semiconductors
- Cosmic Circuits
- NXP Semiconductors
- Calypto Design Systems
- Nokia
- Philips Research
- Apache Design Solutions
- ST Microelectronics
- Qualcomm
- Rambus
- Sequence Design
- Maxim IC
- Mentor Graphics
- Synfora IEC
- Freescale Semiconductors
- Ikanos Communications
- Juniper Networks
- Brocade
- Sun Microsystems
- Tejas Networks
- TANMIC
- Atrenta
- Mechatronics
- Aptina