



Indian Institute of Technology Delhi

PLACEMENT TEAM 2018-19

STUDENT PLACEMENT COORDINATOR

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Recruitment Brochure 2018-19
Department of Electrical Engineering

About Us

The Department of Electrical Engineering is one of the largest departments in IIT Delhi, and has a distinguished faculty, all holding Ph.D. degrees from renowned institutes in India and abroad. Some of the objectives of the department include training students at the undergraduate and postgraduate levels, research and development in all branches of Electrical Engineering and providing continuing education programmes for working professionals.

The admission to M.Tech programme consists of shortlisting of students based on GATE (Graduate Aptitude Test in Engineering) Score which is followed by an interview. Such a rigorous process ensures that best of the students are inducted in the department.

The Electrical Engineering Department runs six M.Tech programmes specialising in certain areas of Electrical Engineering and are as follows:

- M.Tech in Communication Engineering
- M.Tech in Control and Automation
- M.Tech in Computer Technology
- M.Tech in Integrated Electronics and Circuits
- M.Tech in Power Electronics, Electrical Machines and Drives
- M.Tech in Power Systems

Integrated Electronics and Circuits (IEC)

The IEC group is part of the Department of Electrical Engineering at IIT Delhi. It is one of the most sought after courses for M.Tech amongst the students and inducts some of the brightest minds in the country. The faculty and graduate students conduct research in all areas of VLSI design, ranging from device design, photonics, analog, mixed-signal, RF circuits, memory technologies, spintronics and MEMS. The programme has a typical intake of 15 students.

Important Courses

- Micro/Nano Electronics
- MOS VLSI Design
- Analog Integrated Circuits
- Semiconductor Memory Design
- Digital System Design
- I.C. Technology
- Physical Design Lab
- Mixed Signal Design

Laboratory Facilities

- Impact and DRDO Labs: Graduate seating, workstation computing, server racks and access to softwares such as Cadence, Synopsys, Mentor, Xilinx Suites.
- Characterization Lab: Semiconductor device characterization facility; probe station, semiconductor parameter analyzer, wafer level measurements.
- VLSI Measurements Lab: Advanced measurements facility; DC, analog, mixed-signal and RF measurements upto a few GHz; temperature chamber, dark chamber.

On-Going Sponsored Research Projects

- Integration and enablement of 0.18 micron RF-SOI technology for analog mixed-signal applications
- Wide-area field of view CMOS image sensors for aerial surveillance for defense applications
- Investigation of emerging non-volatile memory technology for storage and computing applications
- Design and development of high-G MEMS switch

Computer Technology (C.Tech.)

The Computer Technology Group pursues research in broad areas of Computer Networking, Sensor Networks, Embedded Systems, Parallel and Distributed Processing, Big Data Analysis, CAD for VLSI, Computer Vision and Image Analysis, Biometrics, Pattern Recognition, Machine Learning, Data Analytics, Neural Networks, Artificial Intelligence and Soft Computing, Multimedia Systems, Graph Theory, Systems Biology, Bioinformatics, and Music and Audio Processing.

Important Courses

- Computer Architecture
- Operating Systems
- Advanced Machine Learning
- Digital Image Processing
- Algorithm Design and Analysis
- Multimedia Systems
- Computer Vision
- Computational Perception and Cognition

Laboratory Facilities

- Multimedia Labs: Research areas involve Computer Vision, Multimedia Systems, Computational Intelligence
- Embedded Systems Lab: High configuration workstations, FPGA Development Platforms and workstations, Programmable sensor nodes.
- Information Technology Lab: VMware, Xilinx, circuit maker, pspice, EE servers with open mozix cluster architecture http, mail server.
- Protocol Testing and Developing Lab: 7 workstations and few of them containing very high RAM as some Projects deals with very

Sponsored/On-Going Research Projects

- Multilingual OCRs for Indian Scripts (A multi-institutional project, coordinated by the group, sponsored by the MCIT, Government of India)
- Autonomous Robotics (a project involving 5 groups, two in the EE Department, sponsored by the BRNS, Government of India)
- Wireless Sensor Networks (project sponsored by the NAIP)
- Image Super-Resolution using Generative Adversarial Networks(SRGANs)



Power Systems

The Power Systems group is part of Power Engineering Group at IIT Delhi. The research interests of the the Power Systems group include Power Systems Analysis and Control, Power Generation, HVDC, FACTS, Distribution Automation, Power Quality, Energy Systems, Energy Audit and Energy Conservation, Renewable Energy (Wind, Small Hydro, and PV), Electrical Machines and Drives.

Important Courses

- Power System Analysis
- Advanced Power Systems Protection
- Power System Dynamics
- Advanced Power System Optimization
- Power Systems Lab
- Power System Reliability

Laboratory Facilities

- Power Systems Lab: This lab hosts facilities for Power Instrumentation, data acquisition, and energy audit and computing facilities with state-of-art software.
- Smart Grid Lab: Hardware implementation of projects, real time simulator

On-Going Projects

- Smart Grid: Selective data transmission scheme for wide area smart grid communication network
- Electricity Pricing
- PMU Application: Phase Measurement Unit implementation.
- Power System Dynamic Studies of MicroGrid: For Solar and Wind Energy

Power Electronics, Electrical Machines and Drives

The Power Electronics, Electrical Machines and Drives group is an integral part of the Electrical Engineering Department at IIT Delhi. The group provides extensive research facilities including well-equipped laboratories with latest state of art equipment. Faculty is actively involved in teaching at undergraduate and postgraduate level through courses covering latest trends in Power Electronics, Electric Machines and Drives, providing hands on laboratory experience. The faculty members have been awarded a number of international and national awards, and constitute editorial boards of leading journals and programme committees of several conferences worldwide. The group has research collaboration with several industries, power utilities and R&D organizations in India and abroad.

Important Courses

- Modelling of Electrical Machines
- Power Electronic Converters
- Electric Drive System
- Advanced topics in Power Electronics
- Digital Control of Power Electronics and Drive systems
- Power Quality
- Physical phenomena in electric machines

Laboratory Facilities

- PG Power Electronics Lab: Various types of converters including rectifiers, AC controllers and inverters are available for extensive experimentation along with equipments like DSP Controllers, power quality analyzers and CROs.
- PG Machines Lab: It provides research facilities for electrical machines like induction machines, synchronous machines, DC machines and in addition to these, special electrical machines like stepper motors, BLDC motors, switched reluctance motors, and also sets of generalized machines are also present. The laboratory also houses technologies like solar simulators, Opal RT Real time simulators, etc.
- PG Drives Lab: It provides research facilities on drive systems with converter fed dc and ac drives and their operation and control.

On-Going M.Tech Projects

- Neutral-point voltage control of three-level NPC Converter.
- Current sharing between parallel-connected SiC MOSFET.
- Operation and Control of Permanent Magnet Synchronous Machine.
- Operation and Control of Power Electronic Transformer for integrating renewables with the grid.
- Design and analysis of Soft-Switching Converters.
- Grid connected Multilevel Converter for large scale PV systems.



Control and Automation

The Control and Automation Group has been an integral part of the department of Electrical Engineering. Our mission is to promote cutting-edge research and innovation in the field of Control Engineering. The Group includes seven eminent faculty members with diverse research interest, exploring the following thrust areas: Nonlinear and Robust control, Robotics and Embedded control, Discrete Time Systems and Variable Structure Control, Reinforcement Learning and Adaptive Control, Computational Methods for Modelling Simulation and Control, Distributed Parameter Systems and Biological Systems.

Important Courses

- Linear Systems Theory
- Mathematical Methods in Control
- Nonlinear Systems
- Nonlinear Control
- Adaptive and Learning Control
- Optimal Control Theory
- Stochastic Filtering and Identification
- Neural Systems and Learning Machines

Laboratory Facilities

- Analog Control Laboratory: This lab houses facilities for conducting experiments relating to analog control systems, such as a Linear system simulator, control of AC and DC servomotor, analog control of DC motor, a transducer kit, a process control trainer kit, and a synchro transmitter and transformer
- Digital Control Laboratory: This lab houses facilities for conducting experiments on Magnetic Levitation, Twin Rotor MIMO system (which serves as a model of a helicopter), Gyroscope, Inverted Pendulum, PIC microcontroller based digital control.

On-Going M.Tech Projects

- Controllability of social networks
- Observer Design for Distributed parameter Systems (Considering a specific system of Li-ion battery and designing an observer for State of Charge and State of Health Estimation)
- Model predictive controller application
- Observability of multiagent systems
- Numerical optimal control using Pseudo-spectral optimization

Communication Engineering

Department of Electrical was established in the year 1961 which contains nine post-graduates programmes of which Communication is one of the most demanding and most advanced branch in the country. Communication being a specialized branch involves teaching, research and consultancy works. Various national and international collaborative projects are being undertaken by the faculty of the department. The faculty are engaged in both fundamental and applied research. Various projects/labs are been sponsored by companies like Samsung, Ericsson, etc.

Important Courses

- Signal Theory
- Digital Communications
- Microwave Theory and Techniques
- Detection and Estimation Theory
- Wireless Communications
- MIMO Communication Systems
- Optical Communication Systems
- Coding Theory
- Introduction to Machine Learning
- Computer Vision
- Statistical Signal Processing
- Sensor Array Signal Processing

Laboratory Facilities

- Wireless Communication Laboratory: This lab is equipped with multitudes of antennas and antenna arrays along with other supporting resources like spectrum analyzer, modulator and demodulators, etc. and has 4 complete SDR kits to easily test different types of modulation schemes using software without need of configuring the hardware.
- 5G Massive MIMO Laboratory: India's first 5G massive mimo equipment has been set up in this lab.
- Internet of Things(IOT) lab: It has various facilities to carry research in areas such as Cyber security, sensor data processing, network architecture and embedded intelligence.

On-Going M.Tech Projects

- Swarm intelligence based smart electric meter intrusion detection (SAMSUNG sponsored)
- Malfunctioning of LED screen detection using Swarm intelligence (SAMSUNG sponsored)
- Robust Audio zooming using Td Beamforming technique (SAMSUNG sponsored)
- Audio zooming using MVDT beamforming technique (SAMSUNG sponsored)
- Photons encoding using single photon
- Energy harvesting in wireless communication

Recruitment Procedure

- Student-in-charge or placement officer, Training and placement Cell shall provide the company a Job Notification Form (JNF) <https://tnp.iitd.ac.in/>
- JNF requires details of the job offer – role offered, pay package, place of posting, eligible departments
- Once the filled-in-JNF with all the required details is received, companies are assigned username/password to access their online account at <https://tnp.iitd.ac.in/>
- Companies are also assigned space on the server on which they may upload any presentation, videos, data or other information they want the students to see
- The JNF has to be frozen on the T&P website by the company till a deadline
- Students shall be able to view all the details, and the eligible candidates may apply
- After the application deadline for the students, the resumes are visible to the company. The company submits shortlist on its online account before a deadline
- Short-listed students get notified
- The placement office allots the dates for the campus interviews
- After the completion of the selection procedure on campus, company is required to announce the final list of the students on the same day itself

Resume Verification: All claims made by students in resumes submitted for campus placements are duly verified by the placement office.

Past Recruiters



accenture



SAMSUNG



TEXAS
INSTRUMENTS

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Qualcomm



IBM



CISCO



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SIEMENS

Schlumberger

