Department of Electrical Engineering

Placement Brochure 2025-26

Indian Institute of Technology, Kanpur
भारतीय प्रौद्योगिकी संस्थान, कानपुर

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Table of Contents

01 Welcome Message from the HOD

02 Specializations: Research Areas and Courses Offered
- Microelectronics & VLSI
- Signal Processing, Communications & Networks
- RF & Microwaves
- Power Engineering
- Control & Automation
- Optoelectronics & Optical Communication

03 Infrastructure: Labs & Facilities

04 Current Research Projects

05 Faculty Awards

06 Our Past Recruiters

07 Questions? Contact Us!

Welcome Message from the HOD

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Dear Recruiters,

It is with great excitement that I extend a warm welcome to you on behalf of the Department of Electrical Engineering at the Indian Institute of Technology Kanpur. As the Head of the Department, I am honored to introduce you to our exceptionally bright students who represent the pinnacle of academic excellence, innovation, and industry readiness.

The Electrical Engineering Department holds a legacy that spans over six decades, marking its inception as one of the pioneering departments when the institute took its first steps in 1960. Today, it stands as a beacon of excellence, with facilities such as RTDS, Smart Grid, 5G Test Bed, EMI-EMC Testing, Antenna and Semiconductor device measurement facilities and many more, all testament to our commitment to cutting-edge research and development. The department encompasses a broad range of disciplines, including traditional fields like Power Engineering, Control Systems, Signal Processing, Microelectronics, and VLSI, as well as modern areas such as Artificial Intelligence, Machine Learning, Neuromorphic Computing, Hardware Security, and Future Wireless Communication Networks like 5G, 6G, and mmWave. Throughout the selection process, you will observe that our students have excelled and are skilled in many of these technological areas.

We have ensured a strong connection between academia and industry through various research projects and by involving students in their progress. Through strategic partnerships with industry leaders, we offer our students unparalleled opportunities for hands-on experience with real-world projects. These collaborations provide numerous internship opportunities, giving our students a competitive edge in the job market. This is reflected in our placement records, which are a testament to the exceptional caliber of our graduates. Our students are highly sought after by top companies globally, thanks to their solid technical foundation, strong analytical abilities, and readiness to contribute meaningfully from day one.

With great enthusiasm, I would like to invite you to discover the exceptional potential and unmatched talent of our electrical engineering students. They are innovators, critical thinkers, and future leaders who are prepared to make substantial contributions to your company. We are enthusiastic about establishing strong and mutually beneficial relationships with your esteemed organizations.

Best wishes,
Prof. Yogesh Singh Chauhan
Head EE

Microelectronics & VLSI

Research Areas

- Analog and Mixed signal and RFIC design.
- Digital Circuit Design
- Device design and Fabrication.
- Device compact modelling and Reliability Characterization.
- Organic and Flexible Electronics.
- Nanophotonics and optoelectronics.
- Magnetoelectronics and Spintronics.
- Neuromorphic computing and hardware security.

Courses

- EE610: Analog/Digital VLSI Circuits
- EE611A: Organic Electronics
- EE613: High Frequency Analog Circuit Design
- EE614: Solid State Devices
- EE615A: Solar Photovoltaic technologies
- EE616A: Semiconductor Device Modelling
- EE618: Integrated Circuit Fabrication Technology
- EE619: VLSI System Design
- EE681A: Compact Modelling
- EE698D: Special topics in Microelectronics
- EE698G: Circuits for phase and frequency synthesis
- EE698I: Mixed-signal integrated circuit design
- EE698L: RFIC Design
- EE698N: Introduction to Flexible Electronics
- EE698P: Memory Technology and Neuromorphic Computing
- EE698W: Analog Circuits for Signal Processing

Signal Processing, Comms. & N/Ws

Research Areas

- Wireless technologies for 5G+/6G cellular system
- OTFS radar, Joint Radar and Integrated Sensing Communication
- Cognitive Radio, Cooperative and Multi-user MIMO wireless systems
- Cross-layer algorithm design for 5G wireless systems
- Complex-valued neural network for computer vision
- Realizing large-scale swarms and trajectory optimization algorithms
- Satellite-based remote sensing of atmosphere
- Speech Signal Processing & Recognition of Indian languages
- Multimodal Signal Processing and information fusion

Courses

- EE602: Statistical Signal Processing
- EE604: Image Processing
- EE605: Introduction to Signal Analysis
- EE621: Representation and Analysis of Random Signals
- EE623: Detection and Estimation Theory
- EE627: Speech Signal Processing
- EE667: Information Theory
- EE670: Wireless Communications
- EE675: Introduction to Reinforcement Learning
- EE677: MIMO Wireless Communications
- EE698K: Programming for Signal Processing
- EE698Q: 5G Wireless Technologies
- EE708: Fundamentals of Data Science and Machine Intelligence
- EE798L: Machine Learning for Wireless Communications

RF & Microwaves

Research Areas

- Microwave material processing, Microwave imaging and non-destructive testing, Electromagnetic characterization of dielectric and composite materials.
- Micro & Millimeter wave circuits and techniques, Lasers, nanophotonics, nanoplasmonics
- Antennas, Printed Antennas, MIMO Antennas, Radio Frequency Identification (RFID), Computational Electromagnetics
- Meta-Materials, Microwave Antennas, Dielectric Resonator and its applications, Microwave filters, Finite-Difference Time-Domain (FD-TD) Technique, Wireless Power Transfer, Electromagnetics

Courses

- EE638: Advanced RF Antennas
- EE640: Computational Electromagnetics
- EE641: Advanced Engineering Electromagnetics
- EE642: Antenna Analysis & Synthesis
- EE643: Smart Antennas for Mobile Communications
- EE645: Monolithic Microwave ICs
- EE647: Microwave Measurements and Design
- EE648: Microwave Circuits
- EE649: The Finite Element Method for Electric and Magnetic Fields

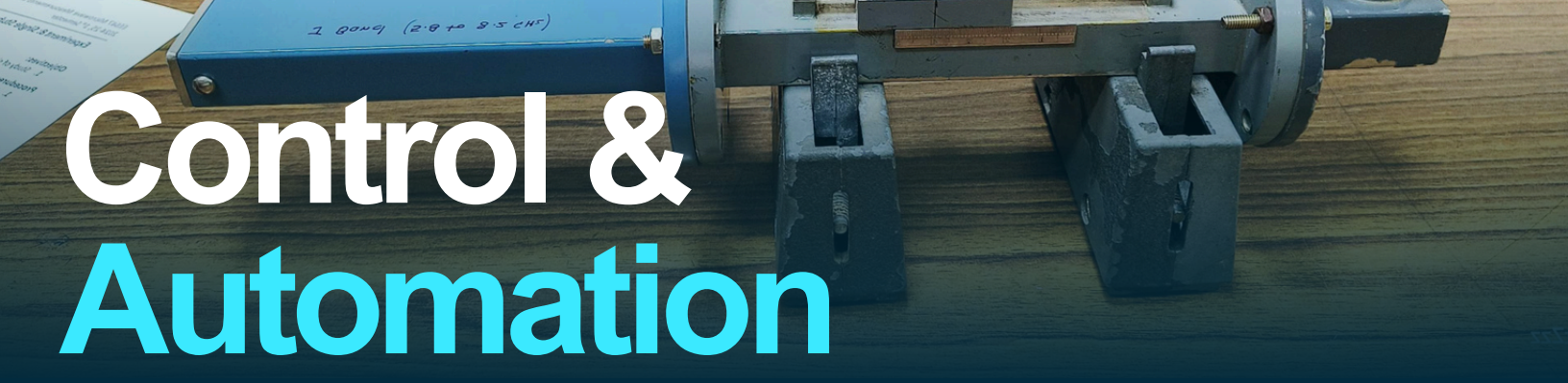
Power Engineering

Research Areas

- Power electronic applications in power systems, power quality, and renewable generation
- Electric vehicles, motor control algorithms, and electrical machines and drives
- Wireless power transfer technology and resonant converters (including those with WBG devices)
- Power electronics for EVs and medium-voltage drives using multi-level inverters and multi-pulse AC-DC converters
- High voltage engineering and failure of insulating materials
- Modeling of plasma discharge processes and dusty plasmas
- Power system security, uncertainty modeling, and robust operation and planning under renewable integration

Courses

- EE630: Simulation of Modern Power Systems
- EE631: Advanced Power System Stability
- EE635: HVDC Transmission & Flexible AC Transmission Systems
- EE660: Basics of Power Electronic Converters
- EE662: Control Techniques in Power Electronics
- EE664: Fundamentals of Electric Drives
- EE698B: Smart Grid Technologies Applications
- EE698E: Power Converters for EV Charging
- EE698H: Operation and Control of the Power System with Inverter-Based Resources



Control & Automation

Research Areas

- Intelligent Systems and Control: Adaptive Critic based Optimal Control, Direct and Indirect Adaptive control using Learning Framework
- Learning to Control Visually Guided Robotic Systems: Manipulators, UAVs, Land Rovers
- Cyber Physical Systems: Event Triggered Control and Switching Control
- Linear and Nonlinear systems, Adaptive Control, Time-delay systems, Control of unmanned vehicles, Multi-agent systems and coordinated control, AC and DC Microgrids.
- Intelligent Data Mining Algorithms and Applications, Health Monitoring and Intelligent Fault Diagnosis Systems, Soft-Computing in Modelling and Control
- Fuzzy Controllers, Image Frame Generation, Brain Computer Interfacing, Machine Learning, Unmanned Aerial Vehicles

Courses

- EE637: Mathematical Methods in Control Systems
- EE650: Basics of Modern Control Systems
- EE651: Nonlinear Systems
- EE652: Linear Stochastic Dynamical Systems
- EE653: Digital Control
- EE654: Robust Control Systems
- EE655: Optimal Control
- EE656: Control System Design
- EE666: Special Topics in Power Electronics
- EE678: Neural Systems and Networks

Optoelectronics & Optical Comms.

Research Areas

- High-speed waveguide photodiodes and modulators
- Mid-Wave Infrared (MWIR) photodiode arrays
- Integrated photonic devices
- Optical Networks and Switching Systems, Optical Communications, Fiber-Optic Communications
- Nonlinear Fiber Optics, Optical Fiber Modeling, Fiber-Optic Sensors, Fiber Lasers and Chaos
- Quantum Cryptography
- Subsurface imaging, Biomedical imaging, Coherent Imaging, Optical Metrology, Digital Holography, Optical tomography
- Nanophotonics, Quantum optics, Quantum-dot-based devices, Plasmonics

Courses

- EE612: Fiber Optic Systems
- EE629: Digital Switching
- EE644A: Optical Communication
- EE646: Photonic Networks and Switching
- EE798I: Nanophotonics
- EE698E: Quantum and Wave Phenomena

For a comprehensive list of research areas, visit:
https://www.iitk.ac.in/ee/research-areas

Infrastructure: Labs & Facilities

Solid State Circuit Design Lab

Fabrication Facility at FlexE Centre

Microelectronics & VLSI

- Semiconductor Device Fabrication Lab
- Solid State Circuit Design Lab
- Organic Electronics Processing and Characterization Lab
- Nano Lab
- Exploratory Device and Circuits Lab

Power Engineering

- High Voltage Lab
- Power Management Lab
- Power System Simulation and Research Lab
- Static Controller Lab
- NaMPET Lab
- Power Electronics for Renewable Integration (PERI) Lab

Optoelectronics & Optical Communication

- Fiber and Quantum Optics Lab
- Optoelectronics and Nanofabrication Lab
- Quantum Photonics Lab
- Tomographic Imaging Lab

Infrastructure: Labs & Facilities

5G TestBed Lab

Indigenous 5G Network Station

Control & Automation

- Networked Control Systems Lab
- Intelligent Systems Lab
- Intelligent Informatics and Automation Lab

RF & Microwave

- Microwave Circuits Laboratory
- Microwave Imaging and Material Testing (MIMT) Laboratory
- Anechoic Chamber
- RFID Laboratory
- Microwave Metamaterial Laboratory

Signal Processing, Communication and Networks

- Computer Vision Lab
- Mobile Communications Lab
- Multimedia Wireless Networks Lab
- Multimodal Information Processing Systems Lab
- Intelligent Networks Lab
- Wireless Communications Coding and Cognitive Radio Lab
- Perception & Intelligence Lab
- Signal Processing in Networks Lab
- Wireless Sensor Networks Lab
- Brihaspati Lab

Current Research Projects

Analog and Digital Circuit Design

- RF Transceiver SOC With DSP For 27MHz - 1.05GHz — **Imon Mondal, R. S. Ashwin Kumar, Chithra**
- Study And Design Of Power-Efficient Non-Uniform Sampling Analog-To-Digital Converters For Multi-Band Wireless Receivers — **R S Ashwin Kumar**
- Design And Development Of A 17um Roic And Feasibility Study Of A 12 µm Pitched ROIC For Uncooled Bolometer Detector Arrays — **Imon Mondal**

Advanced Computing

- Neuromorphic Computing And Neuro-Optimizer Platforms Utilizing High-Yield Passive RRAM Crossbar Arrays — **Shubham Sahay, Yogesh Singh Chauhan**
- In-Memory Computing Utilizing Ferroelectric Transistors — **Yogesh Singh Chauhan, Shubham Sahay**
- Design and Demonstration of Highly Scalable Quantum Computer using Semiconducting Qubits — **Avinash Lahgere**

6G and Advanced Wireless Communication

- Design And Technology Co-Optimization Of Stacked Nanosheet RF For 6G Applications — **Yogesh Singh Chauhan, Avinash Lahgere**
- Delay Alignment Modulation (DAM) For Ultra-High Data Rates In Next Generation mmWave and Terahertz MIMO Systems — **Aditya K. Jagannatham**
- Development Of Millimeter-Wave MIMO Cognitive Radio Systems Using Metasurface And Substrate Integrated Waveguide For Future Wireless Communication — **Raghvendra Kumar Chaudhary**
- RF Characterization and Compact Modeling of Wide Band-Gap Gallium Nitride (GaN) Devices for the Next Generation Wireless Communication - **Avinash Lahgere**

Current Research Projects

AI, Computer Vision & Speech Processing

- Integration Of CCTV Surveillance Cameras With OCR — **Ketan Rajawat, TPQA NNS**
- Integrating Vision Transformation With Edge — **Rajesh Mahanand Hegde**
- Resilience And Cybersecurity Enhancement For An Optimized Distribution System Using Blockchain — **Gururaj Mirle Vishwanath, Ankush Sharma**
- Design And Development Of A Tether System For Drone Application — **Soumya Ranjan Sahoo, Abhilash Patel**
- Adaptive Beamforming For Multi-Channel And Multi-Source Speech Separation — **Rajesh Mahanand Hegde**

Quantum, Sensors & Metamaterials

- Field-Deployable Quantum-Enhanced Sensors On Integrated Hybrid Platform — **A R Harish, Rituraj, Saikat Ghosh, Sapam Ranjita Chanu, Shilpi Gupta, Amit Verma**
- Design And Development Of Quantum Entanglement-Enhanced Imaging Systems — **Rajshekhar Gannavarpu, Anand Kumar Jha**
- Smart Metamaterials For Dynamic Radiative Cooling — **Shikhar Misra, Amit Verma, Rik Dey, Rituraj, Laltu Chandra**
- Design Of A 1Ksps Delta Sigma Analog-To-Digital Converter With Greater Than 18 Bits Resolution , Consultancy For Adc Design — **Ashwin Kumar Ramakrishnan Sivaku**
- Design Of Microwave Imaging Systems For Dielectric Bodies Including Human Phantoms — **Md. Jaleel Akhtar**

For a comprehensive list of publications, visit:
https://www.iitk.ac.in/ee/publications

Faculty Awards

- Prof. Amit Verma has been awarded the Prof. T. R. Vishwanathan Young Faculty Fellowship in Teaching Excellence for a period of three years.
- Prof. Ajit K. Chaturvedi has been awarded the Institute Fellow 2024.
- Prof. Piyush Kant has received the NPSC Young Engineer Award 2024.
- Prof. R. S. Ashwin Kumar has received the Best Paper Award (2nd place) (ISCAS) 2024 Singapore.
- Prof. Animesh Biswas has been awarded the Prof. G. K. Dubey Memorial Lifetime Achievement Award 2024 by the IEEE Uttar Pradesh Section.
- Prof. Gannavarpu Rajshekhar has received the Indian Society for Non-Destructive Testing (ISNT) National NDT Award 2024 for Excellence in Contribution to R&D.
- Prof. Twinkle Tripathy has been awarded the Best Woman Professional Award in the Early Career category of the Shri Pralhad P. Chhabria Awards 2024.
- Prof. Ketan Rajawat has been awarded the Arakere Vasudev Faculty Research Fellowship.
- Prof. Shubham Sahay has received the 2023 IEEE Electron Devices Society Early Career Award.
- Prof. M. Jaleel Akhtar has been elected as a Fellow of the Indian National Academy of Engineering (INAE).
- Prof. Tushar Sandhan has been selected as a Young Associate of the Indian National Academy of Engineering (INAE).
- Prof. S. C. Srivastava has been awarded the Life Fellowship of IEEE USA.
- Prof. Abhilash Patel has received the Early Career Fellowship by the DBT Wellcome Trust India Alliance.
- Prof. Vipul Arora has been awarded the PK Kelkar Faculty Fellowship.
- Prof. Nishchal K. Verma has been awarded the Smt. Lata and K. G. Karandikar Faculty Chair Professorship.

Our Past Recruiters

Google
Texas Instruments
tsmc
intel
MIPS
Qualcomm
Flipkart
ST life.augmented
Rakuten
micron
Samsung Research
NVIDIA
SAMSUNG SEMICONDUCTORS
MEDIATEK
MaxLinear
MORPHING MACHINES
SIEMENS energy
MathWorks
Schlumberger
ANANANT Connecting without Boundary
ESPRESSIF
Aura Semiconductor
ENPHASE
ceremorphic

Questions? Contact us!

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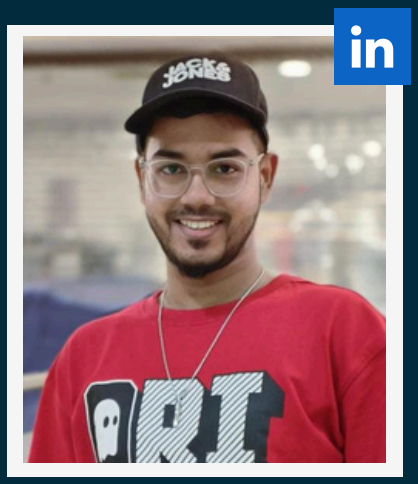
DEPARTMENT PLACEMENT COORDINATORS



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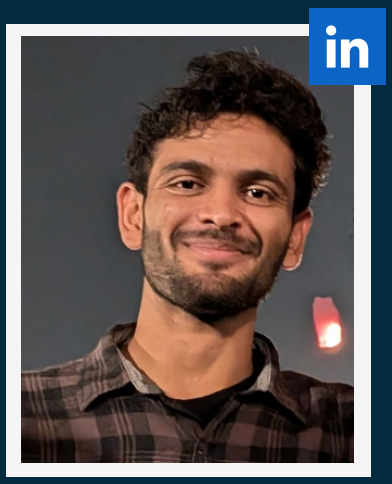

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