



DEPARTMENT OF ELECTRICAL ENGINEERING

INDIAN INSTITUTE OF TECHNOLOGY KANPUR

**Ph.D.
PLACEMENT BROCHURE
2024-25**



<https://www.iitk.ac.in/ee/>



WELCOME MESSAGE FROM THE HOD

**Prof. Yogesh Singh Chauhan
HEAD EE IIT, KANPUR**

head_ee@iitk.ac.in Phone: 0512-259-7244

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 exceptional 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 the Advanced Centre for Electronic Systems (ACES), Western Lab (WL), Western Lab Extension (WLE), and Engineering Science Building 2(ESB2) , 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.

I am proud to share that our department ranks first in research and innovation as per recent NIRF rankings 2023. Our commitment to pioneering research and technological advancement ensures that our students are not just participants but leaders in the field of electrical engineering.

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 esteemed organizations. We are enthusiastic about establishing strong, and mutually beneficial relationships with your esteemed organizations.

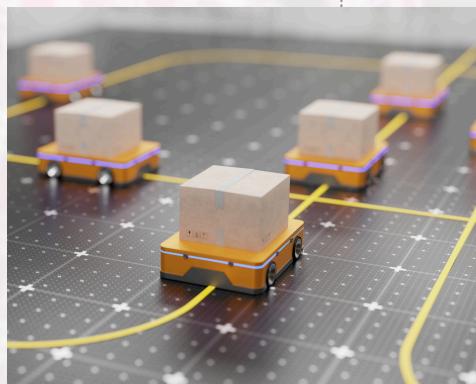
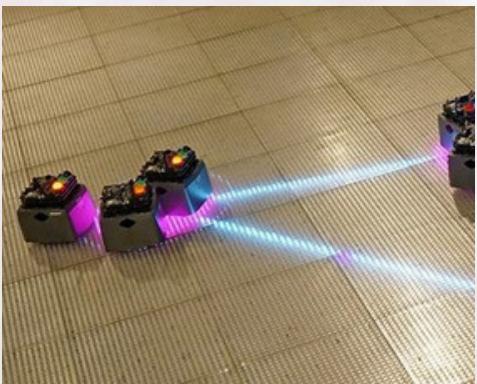
**Best wishes,
Yogesh Singh Chauhan**

Control and Automation

Control and Automation facilities at IITK's Electrical Engineering Department include a Robotics Lab with 7-DoF manipulators, mobile robots, and visual systems for autonomous navigation and multi-robot control. The Control Systems Lab supports microprocessor-based PMDC motor control, multimotor coordination, networked control, and electric vehicle control. The Distributed Systems and Control (DiSCo) Lab offers quadcopters, UAVs, a flight simulator, 3D printers (PLA/PETG), and an in-house DC microgrid setup. The Dynamics and Control Lab explores control theory in systems biology, microrobotics, and power systems, with molecular biology equipment, micro/nano robots, and simulation platforms.

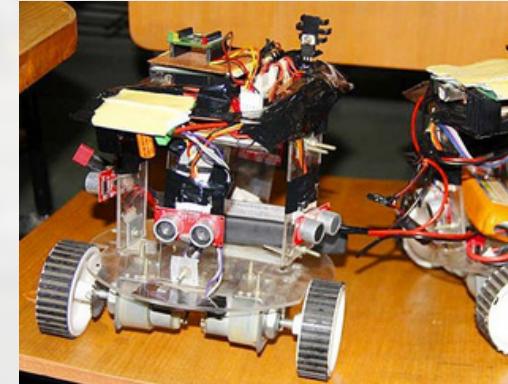
RESEARCH AREAS

- Control and Dynamical Systems and Robotics
- Networked Control and Electric Vehicle Control
- Electronic and Virtual Instrumentation
- Neural Networks and their applications
- Fuzzy Logic
- Dynamics and Control



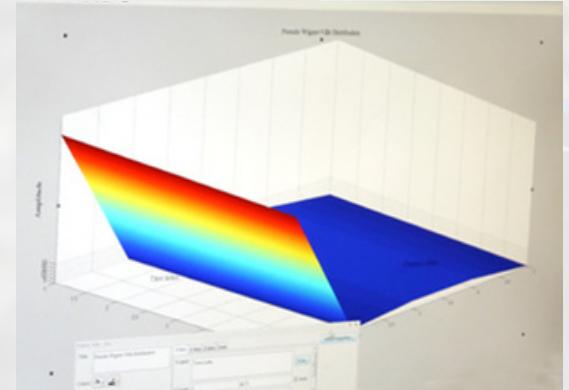
AWARDS & RECOGNITIONS

- Best Poster Award: National Youth Conference on Indian Knowledge Systems 2023, G-20 University connect
- AWSAR award by DST
- POSOCO Power Systems Award (PPSA) 2023
- IEEE-IES Student and Young Professional Competition (2021)



FACILITIES

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



Microelectronics and VLSI

Microelectronics and VLSI facilities at IITK's Electrical Engineering Department include a Microfabrication Lab for silicon and organic devices (OLEDs, organic solar cells), a Solar Cell Characterization Lab, and a photo mask facility. The Semiconductor Device Lab synthesizes organic materials for LEDs and solar cells. The Integrated Circuits and VLSI Lab is equipped with modern EDA tools (Cadence, Synopsis, Mentor Graphics, Xilinx) and hardware, supporting chip fabrication at various technology nodes and semiconductor characterization for industry-standard modeling.

RESEARCH AREAS

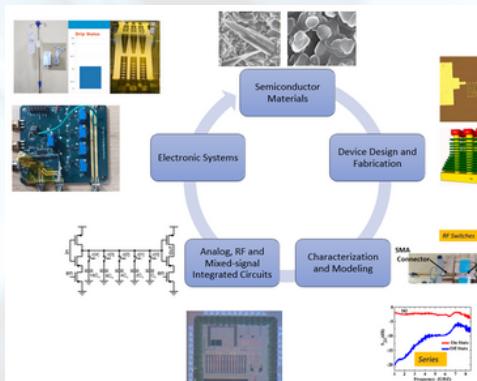


- Device Design & Fabrication
- Nanophotonics & Spintronics
- Hardware Security
- Neuromorphic Computing
- Thin Film Photovoltaics
- Organic & Flexible Electronics
- RF IC Design
- Mixed Signal & Analog IC Design
- Reliability Characterization
- Device Compact Modelling

COLLABORATIONS



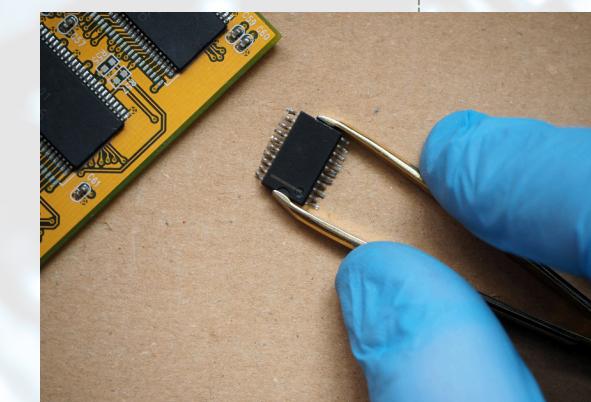
INDUSTRY



AWARDS & RECOGNITIONS



- Best Poster Award (IEEE EDTM 2023)
- Best Student Paper Award: Joint Conference on Electrostatics (2022), IEEE ICCA 2021
- IEEE Electron Devices Society- 2022
- Poster Session Award: IEEE WRAP (2021) conference



FACILITIES



- Semiconductor Device Fabrication Laboratory
- VLSI - EDA Laboratory
- Organic Electronics Processing and Characterization Lab
- NanoLab



ACADEMIC



GOVERNMENT



RF and Microwaves

RF and Microwaves Lab at IITK's Electrical Engineering Department is equipped with advanced tools, including network analyzers (up to 67 GHz), spectrum analyzers, signal generators, power meters, and a noise figure meter. It features a shielded anechoic chamber for antenna and RCS measurements, a microwave imaging and material testing facility covering a wide frequency range, a dielectric probe kit, and calibration kits for rectangular waveguide and coaxial frequencies across various bands.

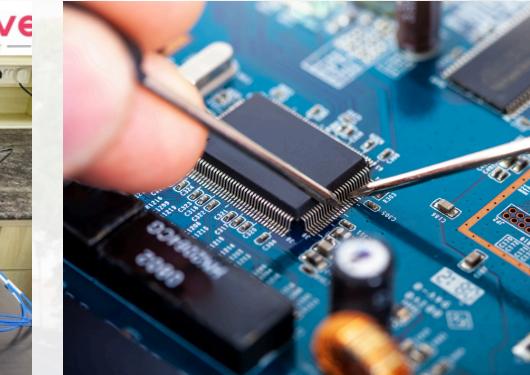
RESEARCH AREAS

- Millimeter & Microwave circuits
- Microwave Antenna
- RFID & Computational Electromagnetics
- Monolithic Microwave Integrated Circuit
- Microwave Filters
- Microwave Absorbers using Functional Materials
- Microwave Imaging and Nondestructive Testing
- Microwave Metamaterial Absorbers
- RF Sensors
- Programmable Metamaterials



AWARDS & RECOGNITIONS

- Best Presentation Award: ICMENS 2024
- IEEE MTT-S Fellowship 2023 Award
- Best Paper Award: IEEE (MAPCON-2023), National symposium on High voltage (2023)
- Best Female Student Paper Award (IEEE MAPCON-2022)
- Motohisa Kanda Award (2022)
- IEEE AP-S Doctoral Fellowship Award (2021)
- Best Female Student Paper Award: IMaRC 2021



FACILITIES

- Microwave Circuits Lab
- Microwave Imaging and Material Testing (MIMT) Lab
- Microwave Metamaterial Lab
- mmWave Research Lab
- Anechoic Chamber
- Antenna Lab
- RFID Lab



Protective Layer for Microwave Metamaterial Absorbers



Power Engineering

Power Engineering facilities at IITK's Electrical Engineering Department include a modern high voltage lab with AC, DC, and impulse test facilities, partial discharge monitoring, and an outdoor insulation test bay. The Power Electronics and Static Control Lab focuses on solid-state control of electric drives. The Power Systems Simulation Lab is equipped with Real-Time Digital Simulation (RTDS), Opal-RT, and other advanced tools. The NaMPET Lab offers fabrication and testing for power electronics, including a frequency response analyzer and solar panels. The Power Management Lab includes a solar simulator, frequency response analyzer, and electronic loads.

RESEARCH AREAS

- Wireless Power Transfer
- EV Charging Systems
- Power Management Circuits
- EMI/EMC in Power Electronics
- Active Power Filters and Static VAR Systems
- Transactive Energy System Design
- Smart Grid and Synchrophasors
- Machine Learning in Power Systems
- HVDC and MVDC Transmission Systems
- Nanodielectrics and Multi-Functional Materials
- Optimization and Markets
- Power Systems Economics

AWARDS & RECOGNITIONS

- Grid India Power System Award
- Best paper Awards: ICMENS 24, Osaka, Japan, HV-ESCA, BARC, India, ICPEA 2024, Malaysia, NPEC2023, Guwahati, BARC Mumbai
- Best Outstanding PhD Thesis Award
- Karandikar Best PhD Thesis Award
- SIIC Student Innovation Award (SSIA)
- Student secured 3rd place with a \$10,000 prize in the IEEE Empower a Billion Lives competition at the IEEE APEC Conference in Orlando, USA.
- IEEE Empower a Billion Lives Competition
- POSOCO Power Systems Award - 2023, 2021
- Best contributory paper award: ICPS 2021

FACILITIES

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



Signal Processing, Communications & Networks

Signal Processing, Communications, and Networks facilities at IITK's Electrical Engineering Department including a Speech Processing Lab with multi-channel audiovisual testbeds, a Digital Signal Processing Lab with Texas Instruments DSPs, a Computer Vision Lab with chroma keying and cameras, and a Wireless Communications Lab with USRPs and WARP boards. The 5G Testbed Lab enables end-to-end testing, and the Modern Wireless Networks Lab focuses on 5G systems. Additional facilities include electronics maintenance, PCB fabrication, a department library, and a high-speed LAN, supporting advanced research and academic development

RESEARCH AREAS



- Probabilistic Graphical Models
- Error Control Coding, Molecular Communications
- Machine Learning for Audio Processing, speech recognitions
- Peer-to-peer networks
- Digital Switching Systems
- Computer Vision, Wi-fi optical
- 5G and 6G Wireless Technologies, Trajectory Optimization of UAVs, Computational Cardiology
- Inverse Problems and Tomography
- OTFS, ISAC, Cognitive Radio
- Neural & Bio-signal processing, Medical Instrumentation
- Quantum computation and Communications

AWARDS & RECOGNITIONS



- IEEE SPS scholarship - 2024, 2023
- QIF India 2024, 2022, 2020
- Best Paper Award: IEEE SPCOM-2024, IEEE DELCON - 2023 conference
- TCS Research fellowship - 2023
- DeepVerse 6G Machine Learning Challenge
- Poster Session Award: IEEE IWRAP (2022)
- Laurels at SPCOM 2020
- Best Outstanding PhD Thesis Award

COLLABORATIONS



FACILITIES



- Computer Vision Laboratory
- Mobile Communications Laboratory
- Multimedia Wireless Networks Laboratory
- Multimodal Information Processing Systems Laboratory
- Wireless Communications Coding and Cognitive Radio Laboratory (WC3 laboratory)
- Networks Laboratory
- Telematics Lab
- Wireless Sensor Networks Lab
- Brihaspati Lab



Photonics (PH)

Photonics facilities at IITK's Electrical Engineering Department include a Fiber Optics Lab with a spectrum analyzer (600-2000 nm), a clean room for optoelectronic fabrication, and a photonic measurement lab. The Advanced Fiber Optics Lab supports 40-100G optical links with WDM components and high-bandwidth sampling oscilloscopes. The Networks Lab provides a testbed for network simulations, WiFi, and QoS. The Wireless Communications Lab uses NI USRPs, and the Quantum Photonics Lab enables nanophotonic testing with a high-resolution spectrometer, CCD, and FDTD simulation.

RESEARCH AREAS

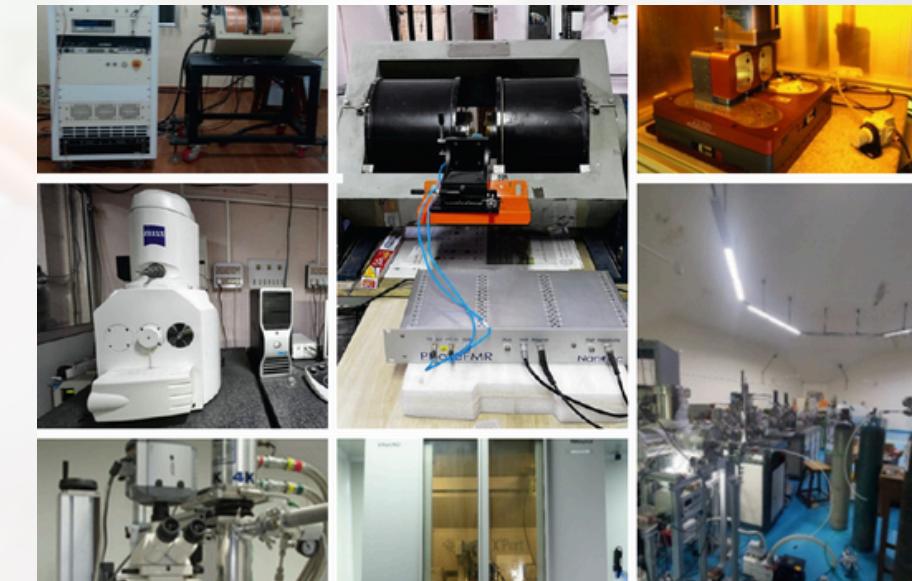
- Biomedical Optics
- Fiber-Optic Communication
- Nanophotonics
- Quantum Cryptography
- Optical networking and switching systems
- Remote Sensing and Battlefield surveillance

COLLABORATIONS



FACILITIES

- Tomography Imaging Lab
- Advance Fibre-Optics Lab
- Communication Networks lab
- Photonics Devices Lab
- Optoelectronics & Nanofabrication Lab
- Optical Metrology and Imaging Lab



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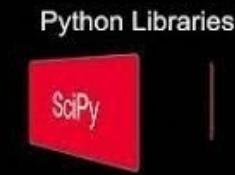
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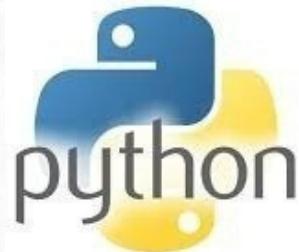
Download From Your Device App

IC-CAP

2021 Update 1.0
Python 3



SILVACO



MICROCHIP

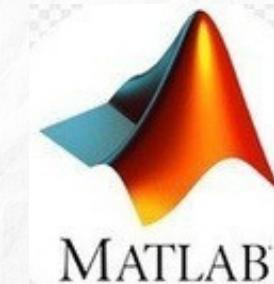
CST Studio Suite 2020



SIMULIA

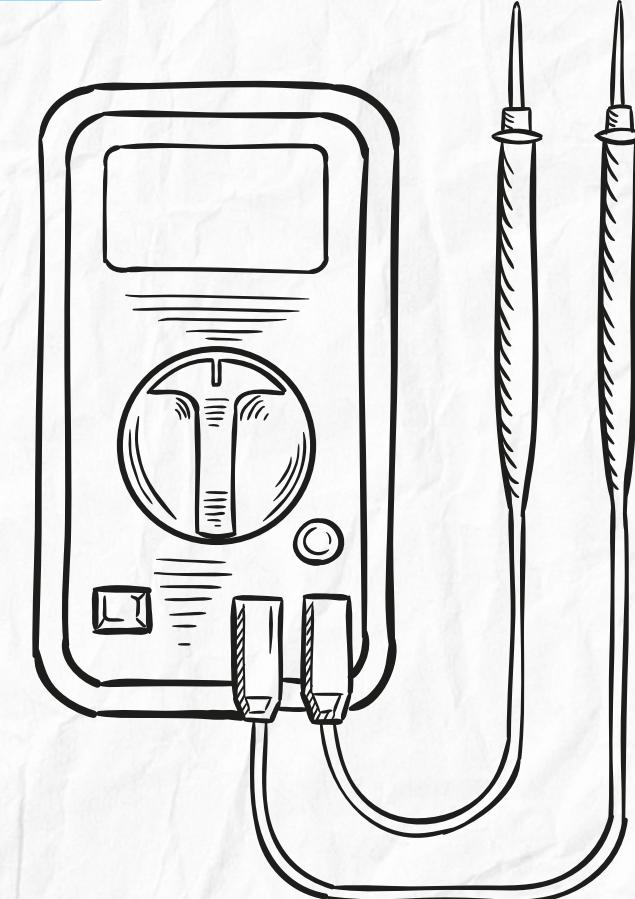
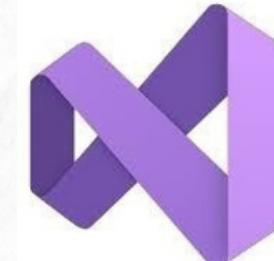
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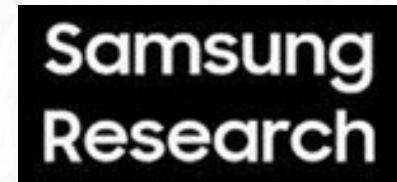
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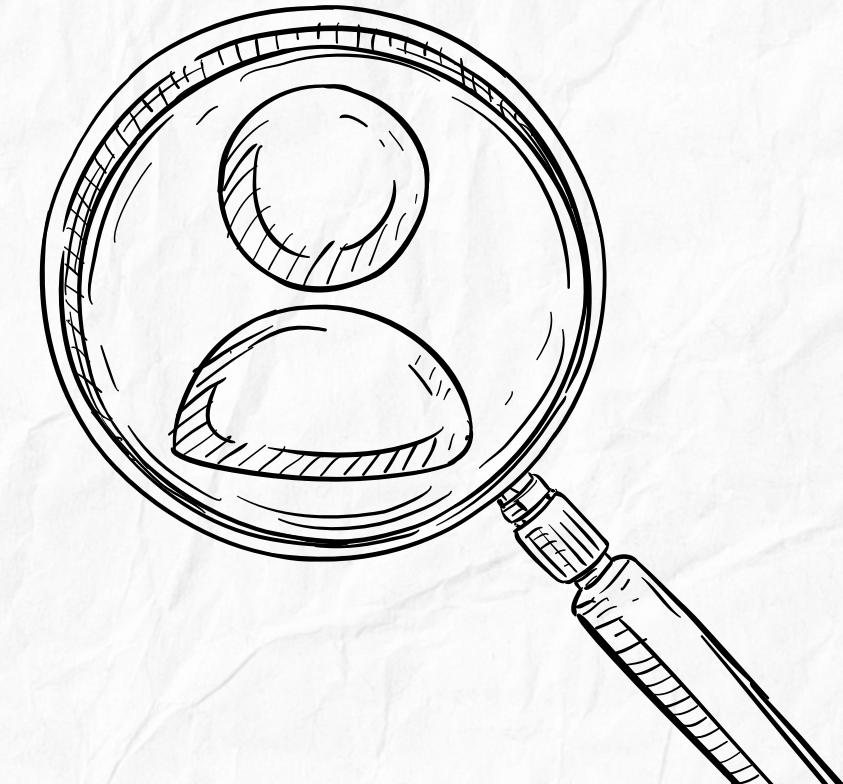


OUR PAST RECRUITERS

Google e ENPHASE



AND MANY MORE ...



GET IN TOUCH

FACULTY COORDINATOR



Prof. Avinash Lahgere
alahgere@iitk.ac.in
+91-512-679-2302

DEPARTMENT PLACEMENT COORDINATORS



Abhisha Garg
abhisha20@iitk.ac.in



Shubham Saxena
shubs20@iitk.ac.in
+91-79056 49987



CONTACT US

STUDENTS' PLACEMENT
OFFICE 109, Outreach
Building, IIT Kanpur email:
spo@iitk.ac.in Phone: +91
512-259-2048

