DEPARTMENT OF ELECTRICAL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY KANPUR

PhD Admission
2024-25 Semester-I

Department of Electrical Engineering, IIT Kanpur invites applications for admissions to the PhD programme from eligible candidates.

Specializations

- Microelectronics and VLSI (MVLSI)
  Code: 01
- Power Engineering (PE)
  Code: 02
- RF and Microwaves (RF)
  Code: 03
- Signal Processing, Communication and Networks (SPCOM)
  Code: 04
- Control and Automation (CA)
  Code: 05
- Photonics (PH)
  Code: 06

Who can apply?

- MTech/ ME degree in relevant discipline
- BTech degree in relevant discipline with
  - minimum 7.5 CPI or 75%
  - valid GATE score for graduates from non-CFTI (Waiver of valid GATE score for graduates from CFTIs)
- MSc degree in allied area with
  - minimum 6.5 CPI or 65%
  - first division in Bachelor’s degree
  - JRF/valid GATE score

(Eligible candidates in BTech/MTech final semester can also apply)

Highlights

- Institute assistantship upto INR 42,000 per month
- Eligible for applying for PMRF with fellowship > INR 70,000 per month
- Eligible for applying for Visvesvaraya fellowship
- Travel support up to Rs 2 Lakhs for national and international conferences
- Opportunities to work with international universities/exchange programs
- Startup/ incubation via Student Entrepreneurship Policy

Why IITK for PhD?

- Ranked #1 in Innovation (NIRF)
- Fastrack your path to expertise

Important Links

Information and dates related to admission and interview are here:
https://www.iitk.ac.in/ee/admissions

admissionee@iitk.ac.in
+91-512-259/679-6670; +91-512-259/679-7732

Important Dates

Application submission:
Mar 22, 2024 - Apr 11, 2024

Dates of interview/written test:
May 6-7, 2024 (hybrid-mode)
Semiconductor design and manufacturing are complex and globalized processes, with VLSI & Embedded Design engineers working around the clock to bring new products to market. VLSI stands as a remarkable testament to human ingenuity and its profound impact in our daily lives.

One of the major factors leading to the remarkable development in the VLSI sector is the establishment of higher education institutions imparting knowledge across the country’s different states. Investing in education will significantly pay off in the future.

The department has state-of-the-art research labs and support facilities in Microelectronics and VLSI. The faculty’s research covers a wide spectrum, from fundamental studies to sponsored and consultancy projects, encompassing from circuit to device level, fostering interdisciplinary collaboration. Our research students are in high demand from top employers, who are eager to hire them for their skills and knowledge.
ABOUT US

The EE department at IIT Kanpur is among the institution’s original five departments established in 1960. The main aim of the Power Engineering group is to develop cutting-edge technology to achieve net zero carbon emissions to improve grid stability and resiliency in the presence of renewables. The research focus is also to develop techniques to foster e-mobility deployment. The research work also focuses on the development of new materials for insulation with advancements in technologies.

Awards

Our distinguished faculties have been awarded the POSOCO Power System Award, Young Engineer Award, IEEE fellowship, INAE fellowships, and INAE outstanding award and directorship of reputed institutes, and our students have been awarded a prestigious PMRF fellowship.

Alumnus

Alumnus from the power engineering group have secured PhD. & PDF in reputed institutes such as Imperial College London, Iowa State University, etc., around the globe, they have secured jobs in MNCs such as GE, MathWorks, Intel, etc., and many have been placed in reputed IITs and other reputed institutes around the globe as an assistant professor.

RESEARCH FACILITIES

- Advanced Power Systems Research and Real-time Simulation Lab
- Smart Grid IoT Lab
- Static Controllers Lab
- Power Management and Power Electronics Lab
- Impulse Generator, 4.4 kJ, 500 kV, 4 stage
- High Voltage Power Frequency AC Test Transformer, 100kVA, 150 kVA
- Dielectric Spectroscope & Pulsed Electro - Acoustic Analyzer
- RTDS, opal rt, Typhoon, power amplifier.
- Setting up smart city prototype in IITK
- Microgrid Lab
- NaMPET Lab

POWER ELECTRONICS

- Piyush Kant (PhD IIT Delhi)
  https://home.iitk.ac.in/~piyushkant/
- Parthasarathi Sensarma (PhD IISc Blr)
  https://shorturl.at/dnuW2
- Shyama Prasad Das (PhD IIT Kharagpur)
  https://shorturl.at/otFUQ
- Suvendu Samanta (PhD Concordia Uni)
  https://home.iitk.ac.in/~suvendus/

POWER SYSTEM

- Abheejit Mohapatra (PhD IIT Delhi)
  https://shorturl.at/bgeOL
- Ankush Sharma (PhD IIT Kanpur)
  http://www.ankushsharma.com/
- Gururaj Vishwanath (PhD IIT Roorkee)
  https://home.iitk.ac.in/~gururajmv/
- Sakti Chakraborti (PhD MUN Canada)
  https://home.iitk.ac.in/~sakti
- Shyam P. Das (PhD IIT Kharagpur)
  https://home.iitk.ac.in/~spsdas
- Suvendu Samanta (PhD Concordia Uni)
  https://home.iitk.ac.in/~suvendus

HIGH VOLTAGE

- Alok Ranjan Verma (PhD IISc Bangalore)
  https://home.iitk.ac.in/~arverma/
- Nandini Gupta (PhD IISc Bangalore)
  https://home.iitk.ac.in/~nsgupta/

PROJECTS

More than 30 fully funded projects are ongoing in departments in various streams. More information about these projects can be found on the Electrical Engineering Department IIT Kanpur website.

PUBLICATIONS

In the past 5 years, more than 150 papers from various faculties and their research students were published in reputed journals.
RF & Microwave Research Group
Department of Electrical Engineering, IIT Kanpur

RF and Microwave Group at Department of Electrical Engineering, IIT Kanpur uniquely offers academic training and research expertise in RF and Microwave domain ranging from passive to active microwave circuits. Major group objectives include encouraging scientific exchanges amongst academia and industry within the field of RF and Microwave, providing research support, consultation for industry and other government organizations.

Facilities and Resources

- Vector Network Analyzer
- Handheld VNA
- Signal Analyzer
- Spectrum Analyzer
- Analog Signal Generator
- Noise Figure Analyzer
- RF Amplifier
- Digital oscilloscope
- RF Dielectric Testing Facility
- Measurement of Dielectric Properties
- Microwave Imaging
- Non-destructive Testing
- Anechoic Chamber
- Antenna Measurement Facility
- EMI/ EMC Test Facility
- PCB Fabrication Facility

Research Areas

- Millimeter & Microwave circuits
- Microwave Antenna
- Programable Metamaterials
- RFID & Computational Electromagnetics
- Monolithic Microwave Integrated Circuit
- Microwave Filters
- Microwave Metamaterial Absorbers
- Microwave Absorbers using Functional Materials
- Microwave Imaging and Nondestructive Testing
- RF Sensors
- Microwave Imaging and Material Testing (MIMT) Lab
- Antenna Lab
- RFID Lab
- Microwave Metamaterial Lab
- mmWave Research Lab

Faculty Members

- Prof. Animesh Biswas
- Prof. A. R. Harish
- Prof. M. Jaleel Akhtar
- Prof. Kumar Vaibhav Srivastava
- Prof. Raghvendra Kumar Chaudhary
- Prof. Nagaditya Poluri

https://www.iitk.ac.in/ee/rf-and-microwaves
Dr. Laxmidhar Behera
Research Interests: Intelligent control, quantum learning system, cognitive modelling, cognitive robotics, physics of complex systems, brain-computer interface.
https://home.iitk.ac.in/~lbehera/

Dr. Abhilash Patel
Research Interests: Dynamics and control of nonlinear systems, systems and synthetic biology, robust control theory, wide-area control.
https://home.iitk.ac.in/~apatel/

Dr. Ramprasad. Potluri
Research Interests: Practical applications of control theory, multi-motor coordination, electric vehicles (EVs), energy efficient low-pollution EVs.
https://home.iitk.ac.in/~potluri/

Dr. Soumya Ranjan Sahoo
Research Interests: Analysis of nonlinear systems and control, cooperative control and application to robots and microgrids.
https://home.iitk.ac.in/~srsahoo

Dr. Tushar Sandhan
Research Interests: Signal processing, computer vision, reinforcement learning, machine learning, robotics, communication systems.
https://home.iitk.ac.in/~sandhan

Dr. Twinkle Tripathy
Research Interests: Guidance and control of autonomous vehicles, robotics and study of opinion dynamics in social networks.
https://sites.google.com/view/twinkletripathy/home

Dr. Nishchal K. Verma
Research Interests: Intelligent algorithms, machine learning, computer vision, smart grid, intelligent agents, brain computer interface and fuzzy controllers.
https://www.iitk.ac.in/idea/

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Light plays a critical role in our lives and the recent advances in photonics have enabled several revolutionary technologies. Fast internet, high resolution displays and cameras in our smartphones, virtual reality glasses, biomedical diagnostic tools, sensors, secure quantum communication, quantum computers, and the list goes on. The photonics group in the department of Electrical Engineering at IIT Kanpur has been pushing the frontier of photonic research and education with excellent state of the art facilities as well as industrial and academic collaborators across the globe.

FACULTY
- PROF. G RAJSHEKHAR
- PROF. SHILPI GUPTA
- PROF. PRADEEP KUMAR K
- PROF. NAREN NAIK
- PROF. Y N SINGH
- PROF. RITURAJ
- PROF. DEBDATTA RAY

RESEARCH AREAS
- BIOMEDICAL OPTICS
- FIBER-OPTIC COMMUNICATION
- NANOPHOTONICS
- QUANTUM CRYPTOGRAPHY
- OPTICAL NETWORKING AND SWITCHING SYSTEMS
- SILICON PHOTONICS
- REMOTE SENSING AND BATTLEFIELD SURVEILLANCE

COLLABORATIONS

https://iitk.ac.in/ee/photonics