

# Indian Institute of Technology Indore

## Advertisement for Admission to Ph.D. Program in Electrical Engineering (EE) for Autumn Semester of Academic Year (AY) 2024-25

### (IN-PERSON INTERVIEW Under All Admission Categories)

IIT/Acad/PhD Admissions/24-25

October 20, 2024

IIT Indore invites applications from highly motivated and research-oriented students for admission to its PhD program in the Department of Electrical Engineering for the Spring Semester of Academic Year (AY) 2024-25 for all categories of admission and time schedule. Candidates can visit the profiles of the faculty members listed below at the link <http://ee.iiti.ac.in/faculty.html> before applying. To know about different categories of admission, kindly refer to the main PhD advertisement available at <https://academic.iiti.ac.in/phdadv.t.php>

#### Time Schedule of PhD selection process:

Last date of online application through <a href="https://academic.iiti.ac.in:8443/nregistration.jsp">https://academic.iiti.ac.in:8443/nregistration.jsp</a> (for Indian applicants)	<b>November 11, 2024 (Monday)</b> Latest by 23:59 hrs. IST
Notification to the shortlisted candidates for Interview	<b>November 12, 2024 (Tuesday)</b>
Dates of PhD selection process ( <b>Written Test and Interviews</b> )	<b>November 18 and 19, 2024</b> (Monday and Tuesday)

#### Minimum Educational Qualifications (MEQs) and Qualifying Examination

Master's degree in Electrical/ Electronics/ Electronics & Communication / Physics / Instrumentation and Control Engineering / Material Science & Engineering / Mathematics or any other equivalent degree with specialization in the areas of Communication and Signal Processing or VLSI and Nanotechnology or Radio Frequency and Microwave or Power Electronics and Power Systems or Control Systems and Instrumentation (with first division as defined by the awarding Institute/University) **AND** having GATE qualification in EE/EC/IN/PH subjects OR UGC-NET-LS qualification OR UGC/CSIR/DBT - JRF qualification OR DST INSPIRE fellowship OR Equivalent fellowship.

OR

Four-year Bachelor's degree OR five-year integrated degree in Electrical/ Electronics/ Electronics & Communication / Physics / Instrumentation and Control Engineering / Material Science & Engineering / Mathematics (with first division as defined by the awarding Institute/University) **AND** valid GATE qualification in EE/EC/IN/PH subjects OR UGC-NET-LS qualification OR UGC/CSIR/DBT - JRF qualification OR DST INSPIRE fellowship OR Equivalent fellowship.

#### Important Instructions:

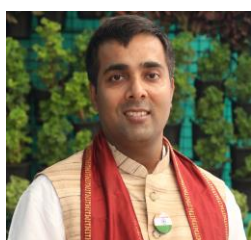
- All eligible candidates, fulfilling the minimum eligibility criteria, must apply online through the website (<http://academic.iiti.ac.in:8080/nregistration.jsp>).
- After applying online, the signed application form along with the following documents should be sent by email to [admission-ee@iiti.ac.in](mailto:admission-ee@iiti.ac.in)
  - Self-attested photocopies/scanned originals of all relevant supporting documents such as **degree certificates, mark sheets from 10th class onwards, date of birth certificate, fellowship award letter, GATE score card UGC-NET Score card, etc., that they wish to present before the selection committee.**
  - Two recent passport size photographs.
  - Receipt of fee (Rs.100/-) paid through SBI i-collect.
  - Letters of recommendation duly signed by a minimum of **two referees**, who have known the applicant in a professional capacity, are mandatory for PhD selection process and must be sent directly to [admission-ee@iiti.ac.in](mailto:admission-ee@iiti.ac.in). **The format of the recommendation letter can be found along with this advertisement. If the above documents/certificates and recommendation letters are not received by email before the application deadline, then the candidates may not be considered for the selection process.**
- Important: DO NOT** send any form or documents by post.
- Prospective candidates are strongly encouraged to submit online application before **23:59 Hours (IST) on November 11, 2024 (Monday)**. The applications will be scrutinized and interview call letter will be sent to shortlisted candidates by **November 12, 2024 (Tuesday)**.
- PhD written test and interview will be conducted on **November 18 and 19, 2024**. The selection process will take place in person at **Indian Institute of Technology Indore, Simrol, Madhya Pradesh-453552**. Prospective candidates are requested to plan for necessary travel arrangement ahead to avoid any inconvenience at the last minute. No communication in any form regarding the **change of date, request for conducting online interviews**, etc. will be entertained.
- No TA/DA will be paid for attending the PhD selection process. **Limited hostel accommodation (on payment basis) will be available inside IIT Indore campus**. The candidates can contact the undersigned ([admission-ee@iiti.ac.in](mailto:admission-ee@iiti.ac.in)) for availing the hostel accommodation during their visit at IIT Indore.

7. Candidates who wish to appear for the PhD selection process and fulfill the eligibility criteria may also send their Resume/CV to the faculty member whose area is of interest to them. The areas of interest and detailed profile of faculty members are given below. Candidates are encouraged to visit webpage of faculty members listed below to know more about ongoing research work and areas of interest.
8. Mere fulfillment of the minimum eligibility criteria does not entitle anyone for admission into the PhD program in Department of Electrical Engineering.



**Prof. Santosh Kumar Vishvakarma**

Prof. Santosh Kumar Vishvakarma is leading “Nanoscale Devices, VLSI Circuit and System Design” research group at IIT Indore. His research interests are VLSI Circuit and System Design including ASIC/SoC Design of Processor Design for Biomedical Application; Energy-Efficient and Reliable SRAM Memory Design; Enhancing Performance and Configurable Architecture for DNN Accelerators; SRAM/RRAM/MRAM based In-Memory Computing Architecture for Edge AI; Reliable, Secure Design for IoT Application and Design for Reliability; Silicon Photonics Circuits; and Quantum Logic and Circuits. He has a very strong collaboration in Industry and Academia across India and globe. As of now, 19 PhD scholars have graduated and 06 Indian patents have been granted from his research group. For details, please visit: <https://www.skvishvakarma.com/>. He may be contacted at his email id [skvishvakarma@iiti.ac.in](mailto:skvishvakarma@iiti.ac.in)



**Prof. Shaibal Mukherjee**

**Hybrid Nanodevice Research Group (HNRG)** led by Prof. Shaibal Mukherjee needs sincere and motivated PhD students to work in **RRAMs in Image Processing, Circuit Design; Quantum Sensors for Healthcare and Agriculture** (<http://hnrq.iiti.ac.in/> and <https://www.quantechl2m.com/>). HNRG has strong collaboration with industries and academia in India and in the USA, KAUST, Russia, France, Sweden, Italy, Japan, Australia, Taiwan, and Germany. **Candidates, having expertise in Microcontroller programming / Verilog / PSpice / Python are desirable.** Till date, 21 PhD students have graduated / submitted thesis from HNRG with 135+ journal papers, 110+ conference papers, 11 book/book chapters and 14 patents (granted: 10, filed and published: 4). Former PhD graduates from HNRG are successfully placed in IIT, IMEC, NITs, IIITs, and Japan ([http://hnrq.iiti.ac.in/phd\\_graduated.php](http://hnrq.iiti.ac.in/phd_graduated.php)). Interested candidates should send their resume at [shaibal@iiti.ac.in](mailto:shaibal@iiti.ac.in)



**Prof. Abhinav Kranti**

Low Power Nanoelectronics Research Group is engaged in pioneering research on capacitorless DRAM, steep switching transistors, material-device-circuit co-design and vertically stacked transistors, all of which are essential for the development of next generation logic and memory technology. The group has very strong collaborations with leading international researchers, and after completing PhD, students often receive offers for post-doctoral positions abroad. Exceptionally talented and motivated candidates, with strong interest in Semiconductor Devices, CMOS, Nanoelectronics, Biosensors, VLSI and Circuit Design intending to work on emerging research problems are strongly encouraged to apply. For more information, please visit: <http://iiti.ac.in/people/~akranti/>. For more details, please contact me at [akranti@iiti.ac.in](mailto:akranti@iiti.ac.in)



**Prof. Mukesh Kumar**

Prof. Mukesh Kumar is leading **Optoelectronic Nanodevice Research Laboratory (Opto Nano Group)**. His research interests include **Optoelectronic Devices, VLSI Technology, Microwave Photonics, Nanoelectronics, Integrated Photonics and Device Fabrication**. He has supervised 10 PhD-scholars so far. He is also serving as an adjunct-faculty at Purdue School of Engineering & Technology, IUPUI, USA. His research-group has ongoing-research-collaborations with leading-scientists in India, France, UK, Russia, South Korea, Germany, and USA. He is looking for motivated and hard-working PhD-candidates who are with a background in **Electronics and related** areas and are interested to work in the above-mentioned research-areas. For further details, please visit <http://iiti.ac.in/people/~mukesh.kr>. Contact: [mukesh.kr@iiti.ac.in](mailto:mukesh.kr@iiti.ac.in)



**Prof. Srivasthan Vasudevan**

Research areas: Biomedical Instrumentation, Photoacoustic imaging; FPGA based electronic development; Electronic hardware development. Motivated students interested in building electronic hardware instrumentation and application of the same in hospitals are encouraged to apply. The main motivation of Biophotonics Lab is to focus on developing instruments for hospitals for clinical research and diagnosis of cancer. Motivation to travel to hospitals and other clinical centres is a must to apply. For further details, please contact [svasudevan@iiti.ac.in](mailto:svasudevan@iiti.ac.in)



**Prof. Vimal Bhatia**

Prof. Vimal Bhatia (<https://sites.google.com/view/signalsoftware/sasg>) is leading collaborations with researchers from the **UK, Finland, Czech Republic, Taiwan, Sweden,** and the **US**, with more than 400 peer-reviewed publications, 10 patent granted and 25 PhD thesis has been submitted. Research on a) Performance analysis of beyond 5G/6G communications, b) RIS-IRS, OFDM, MIMO, NOMA, Cognitive Radio, Visible Light Communications, Quantum Communications c) Bio-inspired image processing, biometry, radar using machine and deep learning algorithms. Bright and highly motivated candidates, having background in **Communications/ Signal Processing/ Mathematics/ Statistics/ Electronics/Electrical Engineering/Computer Science or equivalent** are encouraged to apply. Former PG students placed in IIT, NIT, IIIT, NMIMS, Australia, Canada, Saudi Arabia, UK, EU, and Qualcomm. For further details contact [vbhatia@iiti.ac.in](mailto:vbhatia@iiti.ac.in).



Prof. Ram Bilas Pachori

Prof. Ram Bilas Pachori works in the areas of Signal and Image Processing, Biomedical Signal Processing, Non-stationary Signal Processing, Speech Signal Processing, Brain-Computer Interface, Machine Learning, AI and IoT in Healthcare. He has 352 publications which include journal papers (220), conference papers (91), books (11), and book chapters (30). His publications have approximately 18000 citations with an h-index of 72 as per Google Scholar. He has supervised 21 Ph.D. students for their theses. He is looking for the Ph.D. students to work in the above mentioned research areas. Please visit his homepage for more details: <http://iiti.ac.in/people/~pachori/>



Prof. P. K. Upadhyay

Prof. Prabhat K. Upadhyay is leading a Wireless Communication (WiCom) Research Group at IIT Indore. The WiCom group is intended to conduct fundamental and applied research to cater to the emerging needs of the next-generation wireless communication systems. The various research projects are technically and financially supported by MeitY, CSIR, and DST. The group is also involved in collaborative research with peers from top foreign universities. The broad research areas of WiCom group are cooperative & cognitive radio, IRS, satellite communications, energy harvesting, physical layer security, IoT networks, WBANs, and molecular communications. Motivated and interested PhD candidates to work in WiCom group are encouraged to apply. For more details, please visit the website: <https://iiti.ac.in/people/~pkupadhyay/> (E-mail: [pkupadhyay@iiti.ac.in](mailto:pkupadhyay@iiti.ac.in))



Prof. Vivek Kanhangad

Prof. Vivek Kanhangad's research group at IIT Indore conducts theoretically sound and application-oriented research in the overlapping areas of image analysis, computer vision, and deep learning with a focus on biometrics and biomedical applications. Specifically, the areas of our current research include video analysis using deep learning for safety of autonomous vehicles, high-resolution fingerprint matching, biometric solutions for smartphones, and attack detection in biometric systems. The applicants should be highly motivated with an excellent academic record and programming skills. For more details, please visit <http://iiti.ac.in/people/~kvivek/>



Dr. Swaminathan R

Dr. Swaminathan's ([swamiramabadran@iiti.ac.in](mailto:swamiramabadran@iiti.ac.in)) **Future Generation Communication Systems research group** works on 6G Wireless Systems, Space-Air-Ground Integrated Networks (SAGIN), Blind Receiver Design using Machine/Deep Learning Techniques, Intelligent Reflecting Surfaces (IRS) Aided FSO/RF/THz Communications, etc. Dr. Swaminathan is the author or co-author of more than 85 IEEE Journal and Conference publications. Interested candidates who are having background in Wireless Communications, Signal Processing for Communications, Coding Theory, etc. as well as good in programming are encouraged to apply. Please visit <https://swamiramabadran.wixsite.com/website>



Dr. Sumit Gautam

Dr. Sumit Gautam joined the Department of Electrical Engineering at IIT Indore in Dec'21. He has prior working experience in both industry and academia. His research interests pertain to (but not limited to): Simultaneous Wireless Information and Power Transmission (SWIPT), Wireless Energy Harvesting Methods, Wireless Edge-Caching based cooperative networks, Fronthaul load management: 5G-and-beyond/6G Wireless Communications, and Intelligent Reflecting Surface (IRS)-assisted SWIPT. Interested candidate(s) with good background in Communications/Signal Processing/Mathematics (Optimization Theory)/Computer Science (good coding skills in MATLAB/Python/C++) or equivalent is/are highly encouraged to apply. For more information about his works, please visit: <https://sites.google.com/site/sumitgautamjbp/home>, or kindly write to him at: [sumit.gautam@iiti.ac.in](mailto:sumit.gautam@iiti.ac.in)



Dr. Appina Balasubramanyam

Dr. Appina Balasubramanyam is leading the **Multimedia Engineering and Perceptual Cognitive Analysis Group (MEPCAG)**. This group performs research in the domains of Psychovisual and Cognitive analysis, Multimedia processing and quality assessment, Biomedical image processing, Deep learning, etc., in the domains of 2D and 3D dimensional image and video. **MEPCAG** is looking for motivated PhD students with a background in signal processing and mathematical analysis. For more details, please visit the lab website: <https://sites.google.com/view/mepcag/home> or contact: [appina@iiti.ac.in](mailto:appina@iiti.ac.in)



Dr. Dibbendu Roy

Dr. Dibbendu Roy obtained a Joint-PhD from University of Melbourne and IIT Kharagpur. Post PhD, he worked as a Postdoc at KTH Royal Institute of Technology, Sweden. His research focuses on developing mathematical models using optimization, machine learning, game theory and network calculus for resource allocation and scheduling in next-generation communication networks. You can visit his profile and website at <https://dibbend8.github.io/dibbendu/>



Dr. Saptarshi Ghosh

Dr. Saptarshi Ghosh is leading the research group in **Applied Electromagnetics Laboratory** at the Department of Electrical Engineering, IIT Indore, India. His areas of research interest include frequency selective surfaces, metamaterials, absorbers, reconfigurable intelligent surfaces, antennas, and other microwave devices. He is also working on various cutting-edge technologies, such as 3-D printing, Inkjet printing, and 5G wireless communication. Motivated candidates, having a strong background in electromagnetics and related areas, are highly encouraged to apply. For more information and recent achievements, please visit the webpage: <http://iiti.ac.in/people/~sghosh/>. Interested candidates may also contact at [sghosh@iiti.ac.in](mailto:sghosh@iiti.ac.in).



Dr. Rinkee Chopra

Dr. Rinkee Chopra is leading the research group of RF and Microwave at Electrical Engineering Department, IIT Indore. Her research interest includes RF and Microwave components, millimeter wave antenna and arrays, multiband, broadband endfire and broadband circularly polarized antennas, filtering antennas, RF transceiver components like filters, couplers, amplifiers, phase shifters, amplifier, etc, Frequency modulated and ground penetrating radar. Motivated candidates with a good background in RF and Microwave are highly encouraged to apply and contact me through [rinkee@iiti.ac.in](mailto:rinkee@iiti.ac.in).



Prof. Amod C. Umarikar

Prof. Amod C. Umarikar's research group at IIT Indore works on mainly applications of power electronics in renewable energy systems. The applicants having a strong background in power electronics and power systems would be preferred. The applicants should be highly motivated with an excellent academic record and good programming skills. For more details, please visit the following websites. URL. <https://people.iiti.ac.in/~umarikar/> Research Group: <https://poweriiti.weebly.com>



Prof. Trapti Jain

Prof. Trapti Jain's research group at IIT Indore works on various operational issues related to smart grid. Currently, we are focusing on AI applications in smart grids and cyber-security in smart grids. The applicants having a strong background in power systems would be preferred. The applicants should be highly motivated with an excellent academic record and good programming skills. For more details, please visit the following websites. URL. <https://people.iiti.ac.in/~traptij/>. Research Group: <https://poweriiti.weebly.com>



Dr. Subhadeep Paladhi

Dr. Subhadeep Paladhi is leading the research in the area of **Power System Protection** in the Department of Electrical Engineering at IIT Indore, with a focus on the growing large-scale integration of converter-interfaced renewable energy sources in power systems. Prior to joining IIT Indore, he was with the University of Strathclyde, Glasgow, UK. Highly motivated candidates with excellent academic records are encouraged to apply and may contact him through [spaladhi@iiti.ac.in](mailto:spaladhi@iiti.ac.in). For more details, visit: <https://sites.google.com/view/subhadeep-paladhi>



Dr. Sharad Kumar Singh

Dr. Sharad Kumar Singh ([sharad@iiti.ac.in](mailto:sharad@iiti.ac.in)) is a researcher specializing in various fields including Game Theory, Robotics, Control Theory, Optimization Techniques & Operations Research, and Multi-agent Systems. He has both academic expertise and industrial experience, particularly in the areas of Robotics and Optimization. Prospective applicants for positions under his supervision are encouraged to have outstanding academic backgrounds and strong programming skills. For more information and recent publications, please visit the weblink: <https://sites.google.com/iiti.ac.in/sharad-kumar-singh/>



Dr. Lokesh Kumar Dewangan

Dr. Lokesh Kumar Dewangan specializes in the control and dynamics of HVDC systems/grids. He has completed his PhD from IIT Bombay and was working as a post-doctoral researcher at ECN Nantes, France, and KU Leuven, Belgium, prior to joining the Department of Electrical Engineering at IIT Indore. His primary research focuses on modeling, stability analysis, and controller design for future multi-vendor power electronics-based power systems. With this expertise, he offers mentorship and guidance to highly motivated researchers with a background in power electronics and power systems. Join our vibrant academic community at IIT Indore, where collaboration and innovation thrive. For more details, please contact him at [lokesh@iiti.ac.in](mailto:lokesh@iiti.ac.in) or visit the website: <https://sites.google.com/view/lokeshdewangan/home>



Dr. Prathap Reddy

Dr. Prathap Reddy and his research group at IIT Indore focus on innovative machines and power electronics for building sustainable systems. The research interests are in Magnet-less Machine Design, Multiphase Machines, Pole Phase Modulated Machines, Electric Vehicles, Electrical Drives, Power Electronics, EV Charging Solutions, Multilevel Inverters, Converter Design and Analysis. His research group mainly works on hardware developments to execute cutting-edge research priorities of electric vehicles and sustainable systems. Before joining IIT Indore, Dr. Prathap Reddy held various positions, including Power Electronics Hardware Engineer at Jaguar Land Rover in Bengaluru, DST Inspire Faculty at IISc Bengaluru's Department of Electronic Systems Engineering, and Postdoctoral Research Fellow at Qatar University. For details, please visit the website: <https://sites.google.com/iiti.ac.in/bprathap> or contact me through email: [bprathap@iiti.ac.in](mailto:bprathap@iiti.ac.in)

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**For any queries, please contact:**

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