Indian Institute of Technology Indore

Advertisement for Admission to Ph.D. Program under non-TA category in Centre for Advanced Electronics (CAE) for Autumn Semester of Academic Year (AY) 2021-22

IITI/Acad/PhD Admissions/21-22 May 7, 2021

IIT Indore invites applications from highly motivated and research-oriented students for admission to its PhD program in the Centre for Advanced Electronics (CAE) for the Autumn Semester of Academic Year (AY) 2021-22 as per the mentioned categories of admission and time schedule.

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

Four-year Bachelors' degree **OR** five-year integrated degree **OR** Masters' degree in the **Electronics / Electrical / Materials Science and Engineering / Nanotechnology / Energy Science and Engineering / Microelectronics / Instrumentation / VLSI Design / Embedded System / Optoelectronics / Tele-Communication / Engineering Physics / Microwave Engineering / Biotechnology / Instrumentation and Controls / Physics / Chemistry** (with first division as defined by the awarding Institute/ University)

AND

valid UGC/CSIR/DBT JRF qualification **OR** DST INSPIRE Fellowship **OR** Equivalent Fellowship

PhD Admission Categories:

For Indian Students	**For International Students
FA (Fellowship Awardee): Fellowship Awardees from the funding agencies such as CSIR/ UGC/ DBT/ NBHM/ DST/ equivalent OR Fellowship position in an externally funded project under a faculty member of CAE. The scholarship will be as per the rules of the concerned funding agency.	**ISF (International Self Finance):** Self-Financing Students.
***SW (Sponsored WITHOUT Institute scholarship):** For applicants sponsored from a highly reputed R&D organization or Industry. [After completion of required coursework, either on Full Time (SWF) or Part Time (SWP) basis, with approval of the competent authority]	**ISW (International Sponsored by Industry or NGO):** (i) Industry Sponsorship (ii) NGO (Non-Government Organization) Sponsorship
***DF (Defense Forces):** Serving personnel of defense forces WITHOUT any scholarship from the Institute.	**GSW (International Sponsored by Government organisation):** (i) ICCR Scholarship of Government of India (ii) Foreign Government Sponsorship
***CT (College Teacher):** Permanent Employee of the sponsoring College/Institute/University WITHOUT any scholarship from the Institute.	

***This categories are exempted from valid UGC/CSIR/DBT JRF qualification OR DST INSPIRE Fellowship OR Equivalent Fellowship**

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Time Schedule of PhD Recruitment:

Last date of online application through **https://academic.iiti.ac.in:8443/nregistration.jsp**	**June 2, 2021**
Date of online Interviews	**June 4-5, 2021**

Important Instructions:

1. All eligible candidates, fulfilling the minimum eligibility criteria, must apply ONLINE through the website (https://academic.iiti.ac.in:8443/nregistration.jsp).
2. After applying online, the applicants should take a print out of the application form and sign the same. The scanned copy of duly signed application form along with the following documents should be dispatched by email to: **capc-cae@iiti.ac.in**

a) Self-attested photocopies and originals of all relevant supporting documents such as degree certificates, mark sheets, date of birth certificate, etc., from Xth class onwards. Candidates may also attach original and attested photo-copies of any other testimonials, documents or certificates that they wish to present before the selection committee.
b) Soft copy of passport size photograph.
c) Receipt of fee (Rs.100/-) paid through SBI i-collect

3. **For SW candidates**: Scanned copy of No Objection Certificate (NOC), Experience Certificate, Salary slips of last three months and Employer's PAN card must also be sent by email.
4. **DO NOT** send any form or documents by post.
5. **Only shortlisted candidates will be called for online interviews, and the same will be notified by email**. **No emails or communication, in any form, regarding shortlisted candidates, change of interview date, syllabus of written test and / or interview, etc. will be entertained.**
6. 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 member is given below. Candidates are strongly advised to visit webpage of faculty member listed below to know about ongoing research work and areas of interest.
7. Mere fulfillment of the minimum eligibility criterion does not entitle anyone for admission into the PhD program in CAE.

Brief description about the research group of CAE faculty members involved in the PhD recruitment:

 **Dr. Ajay Kumar Kushwaha**	Dr. Kushwaha leads the research group 'Nano & Energy Materials' at IIT Indore. The group is working on the synthesis of various functional nanomaterials and the investigation of fundamental properties of nanoscaled materials/devices. We are motivated to develop low cost, large scale, and facile materials for electronics & electrochemical devices namely artificial synapses, memristors, energy harvesting/storage devices, electrochemical sensors, and anti-corrosion coatings. At present the group work is funded by DST, SERB, CSIR and TEQIP-III etc. The group has strong collaboration with active researchers in India, S. Korea, Singapore, USA. Please visit the following: https://kushwaha09.wixsite.com/ajay
 **Dr. Apurba K. Das**	The research group **'Supramolecular Chemical Nanoscience Group'** led by **Dr. Apurba K. Das** works on investigating organic-inorganic hybrid materials for energy storage, energy conversion and gas sensors. The research group is focused on multidisciplinary research involving techniques in chemistry, biology and nanosciences. The group has a long-standing interest on supramolecular electronics, 3D-bioprinting and electrocatalysis applications of synthesized functional molecular materials. For more details, please visit **http://people.iiti.ac.in/~apurba/daslab.htm** and contact **apurba.das@iiti.ac.in**
 **Prof. Krushna Mavani**	Prof. Mavani works on thin films, multilayers, nanostructured materials, porous nanomaterials. The materials are generally developed using Pulsed Laser Deposition (PLD). The properties of these materials get influenced by various deposition parameters and therefore can be tuned by controlling the growth conditions. These materials are widely used for various electronic and optoelectronic applications as well as device-making. For study of optoelectronic functions, the thin films of functional materials are deposited and studied by Terahertz Time-Domian Spectroscopy, which is an advanced techniuqe and involves the use of a femtosecond laser. In general, techniques like power XRD, AFM, SEM, temperature dependent resistivity, temperature dependent magnetization and magnetoresistive measurements, dielectric constant, UV-VIS spectrosocpy and terahertz spectroscopy are used by the group to study the PLD grown thin films and nanostructures.
 **Dr. Mukesh Kumar**	The research-focus of **Optoelectronic Nanodevice Research Laboratory** (Opto Nano Group) led by Dr. Mukesh Kumar is on **Optoelectronic Devices, Microwave Photonics, Nanoelectronics, Integrated Photonics and Device Fabrication.** The group is actively involved in *Device-Innovations* through novel-designs and cost-effective fabrication of smart on-chip-devices based on Silicon and other hybrid-materials for communication, interconnects, computing, digital-memory, and bio-chemical-sensing. The group has ongoing-research-collaborations with leading-scientists in India, France, UK, Russia, South Korea, Germany, and USA. Motivated and hard-working candidates, having a background in **Electronics and related** areas are ideally suitable and thus strongly encouraged to apply. For further details, please visit http://iiti.ac.in/people/~mukesh.kr. Contact: mukesh.kr@iiti.c.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 Interfacing, Machine Learning, and AI and IoT in Healthcare. He has 220 publications which include journal papers (132), conference papers (66), books (04), and book chapters (18). His publications have around 8100 citations with h index of 47 as per Google Scholar. He has supervised 12 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://www.iiti.ac.in/people/~pachori/
 **Dr. Santosh Kumar Vishvakarma**	Dr. Santosh Kumar Vishvakarma is leading "Nanoscale Devices, VLSI Circuit and System Design" reserach group at IIT Indore. His research interests are VLSI Circuit and System design including Energy-Efficient and Reliable SRAM Memory Design; Enhancing Performance and Configurable Architecture for DNN Accelerators; SRAM based In-Memory Computing Architecture for Edge AI; Reliable, Secure Design for IoT Application and Design for Reliability. He has a very strong collaboration in Industry and Academia across India and globe. As of now, 13 PhD Scholars has been awarded from his group. For details, please visit: https://sites.google.com/site/svishvakarma/. He may be contacted at his email id skvishvakarma@iiti.ac.in
 **Dr. Shaibal Mukherjee**	**Hybrid Nanodevice Research Group (HNRG)** led by Dr. Shaibal Mukherjee works in advanced devices in **Nanofabrication, Image Processing, Artificial Intelligence, Hardware Security, Solar Cells, RF Transistors, Biochemical Sensor** (http://iiti.ac.in/people/~shaibal/). HNRG has strong collaborative research partners with industries and institutions in India and in USA, Russia, France, Japan, Australia, Sweden, and Germany. Bright and inspired candidates, having a background in Physics / Materials Science/ Electronics are strongly encouraged to apply. **Till date, 14 PhD students have graduated by completing their research at HNRG**. Former PhD graduates from HNRG are successfully placed in IIT, NIT, IIIT, and Japan (http://iiti.ac.in/people/~shaibal/phd_graduated.php). Contact: shaibal@iiti.ac.in.
 **Dr. Srimanta Pakhira**	My research interests involve Electronic Structure Theory, Organic Porous Electronic Materials, Semiconductors, Advanced Electronics, Novel Solar Cells, Renewable Energy Technology, Perovskite and Computational Materials Science. Our group constitutes a truly multidisciplinary effort focused on understanding the Physics and Chemistry of materials at the nanoscale. Recent applications include materials for electronic applications, modern organic electronics, nano-electrochemistry, electrocatalysis, physics of nanotechnology and nanomaterials science, gas storage & separation, renewable energy, alkali-ion battery, chemical reactions, and energy science. The main goal is to understand how scientific processes are responsible for producing the interactions and measurements which we observe. Website: https://spakhirafsu.wixsite.com/acmslab Email: spakhira@iiti.ac.in
 **Prof. Vimal Bhatia**	Prof. Bhatia has active collaborations with researchers from the **UK, Ireland, Norway, Finland, France, Canada, South Africa**, and the **US**, with external funding from DST, MeitY, UKIERI, AKA Finland, IUSSTF, and MHRD. We actively do R&D on a) Performance analysis of 5/6G systems, b) Adaptive/Machine Learning algorithms, c) OFDM, NOMA, Visible Light Communications, d) Bio-inspired machine and deep learning. Bright and highly motivated candidates, having background in **Communications / ML / SP / Physics / Maths / Electronics / Electrical Sciences / Electrical Engineering / Computer Science or equivalent** are encouraged to apply. Former post-graduate students placed in IIT, NIT, IIIT, NMIMS, Australia, UK, EU and in Qualcomm. For more information, please visit: http://iiti.ac.in/people/~vbhatia or contact vbhatia@iiti.ac.in.
 **Dr. Gourinath Banda**	The research in his group is more on the software side of systems design, engineering and development. Research topics include: Autonomous cars, Internet of Things, Cyber Physical Systems, Real-time kernels for CPS and IoT deployments, new safe languages, CPS modeling (primarily MBD), Digital transformation based on Blockchain tech and Formal verification. Works carried out in the group: 1. Developed Real-time Operating Systems and Kernels for Microcontrollers mono and multi core; 2. Formal Verification of Software executable on microcontrollers 3. HW/SW and modelling destined for Autonomous Cars 4. CPS, IoT and WSN incarnations of Embedded Systems 5. Mechatronics and Robotics (particularly programmable platforms)