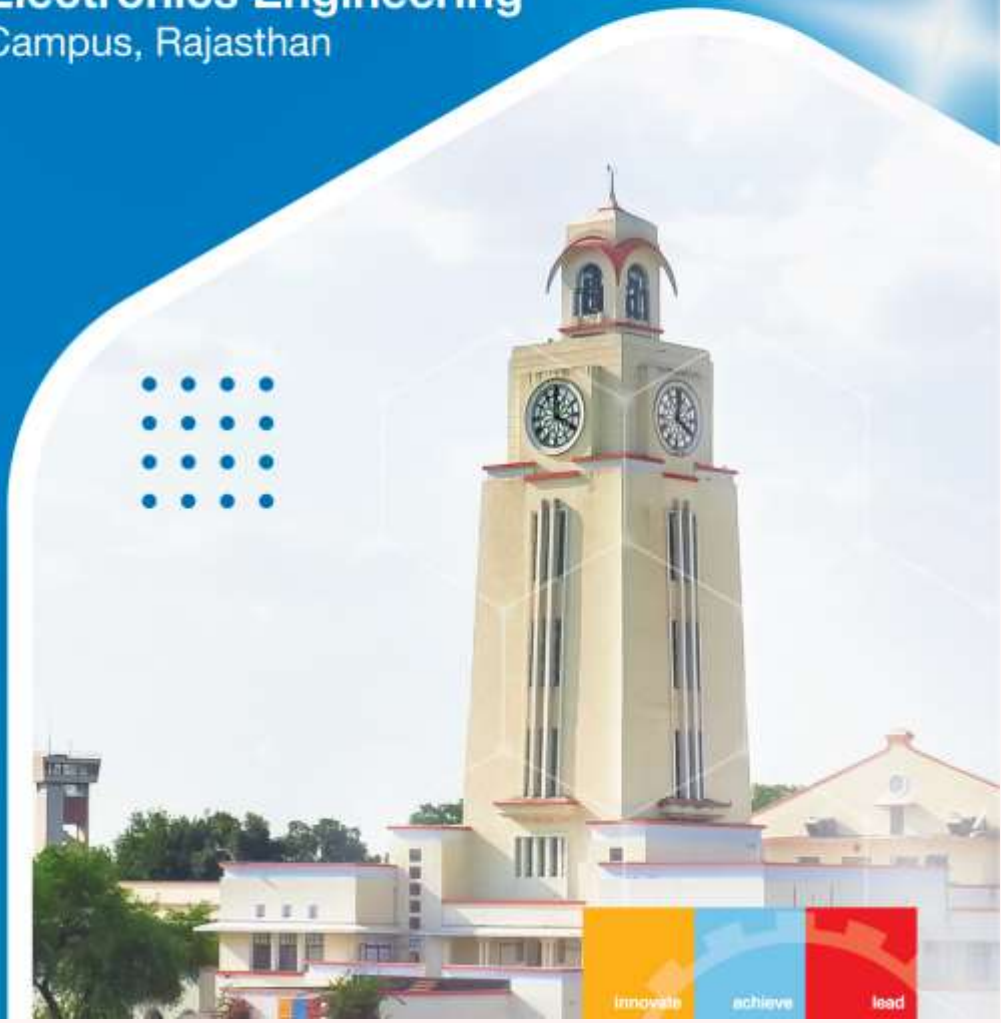




BITS Pilani
Pilani Campus

RESEARCH PROFILE

Department of
Electrical and Electronics Engineering
BITS Pilani, Pilani Campus, Rajasthan



Department of Electrical and Electronics Engineering (EEE)

EEE Department was formed by merging the existing Electrical Engineering and Electronics Engineering departments in 1969-70 and the Instrumentation program was started in the year 1973. The department offers interdisciplinary courses and projects for providing cross-cutting knowledge to the students to pursue their interests. Our staff members typically have a high sense of purpose and derive great meaning from working together to ensure BITS Pilani's academic and research excellence is well supported.

Vision: To be at par with the best universities offering engineering education at the undergraduate and graduate level programmes in area of Electrical, Electronics, Communication and Instrumentation Engineering.

Mission: Provide quality education with emphasis on strong foundation, fostering creativity and use of modern ICT tools, strengthen research activities in thrust areas of the Department, Foster strong collaboration with industries, Support entrepreneurial activities for technology development.

Programs offered	BITS-Pilani, Pilani campus
UG (BE)	<ol style="list-style-type: none">1. Electrical and Electronics Engineering2. Electronics and Instrumentation Engineering3. Electronics & Communication Engineering
PG (ME)	<ol style="list-style-type: none">1. Communication Engineering2. Embedded Systems3. Microelectronics
PhD	Full-Time, Part-Time and Aspirant schemes

Ph.D. Programs and Benefits

Full-Time (FT)
On-campus research with academic exposure and fellowship

Part-Time (PT)
Off-campus research at the workplace on problems relevant to the department

Aspirant Scheme
Off-campus research at the workplace on problems relevant to the students' work environment. Admission to the aspirant scheme is open throughout the year

Benefits

- Diverse research areas
- Exposure to research of national / international importance
- Opportunity for startups and entrepreneurship
- Fellowship of INR 34,000-42,000 p.m for FT students
- Travel Grant and Contingency
- On-campus hostel facility

Eligibility Criteria

Minimum academic record of 60 % marks or 6/10 CGPA in one of the following,

- Higher degree (M.E/ M.Tech.) in relevant area (both FT and PT schemes)
- First degree (BE/BTech in Electrical/Electronics Engg./M.Sc. in Electronics/ Electronics Science/Physics, (FT only).

Selection Criteria:

Shortlisted candidates will be called for written test/interview at Pilani Campus. Candidates with Higher Degree (M.E. / M.Tech.) as the highest qualification or those with National Fellowships like CSIR / DBT/UGC are exempted from the written test. Selected candidates will undergo coursework for one or two semesters with minimum performance requirements.

Trust Research Areas



LAST DATE TO APPLY:







Deadline to receive filled applications with the prescribed application fee is
April 29th 2024

To apply online, copy the below link and paste in your browser
<https://bitsadmission.com/phd2024sem1xbits/Default>

RESEARCH ACTIVITIES OF FACULTY MEMBERS

(<https://www.bits-pilani.ac.in/faculty/?campus=pilani&department=electrical-and-electronics-engineering>)




Faculty Members	Major Thrust Areas of Research	Research Profile
 <p>Prof. Navneet Gupta (Professor and Head)</p>	<p>Modeling of Micro/Nano Electronic Devices, Flexible and Wearable Electronics, Flexible Antennas and Computational Material Science</p>	<p>Number of Ph. Ds produced = 9</p> <p>i 10 index = 40 h index = 20</p>
 <p>Prof. V. Ramgopal Rao (Senior Professor & Vice Chancellor)</p>	<p>Nanoelectronics, Micro/Nano-fabricated Sensor Systems, Technology Aware Design Challenges with Emerging Technologies, CMOS Reliability, Bio-MEMS</p>	<p>Number of Ph. Ds produced = 52</p> <p>i 10 index = 193 h index = 48</p>
 <p>Prof. V. K. Chaubey (Professor)</p>	<p>Optical Wave Guides and Integrated Optics, Wireless & Optical Communication</p>	<p>Number of Ph. Ds produced = 7</p> <p>i 10 index = 25 h index = 13</p>
 <p>Prof. Anu Gupta (Professor)</p>	<p>Analog and mixed signal integrated circuits, RF integrated circuits, VLSI digital circuits</p>	<p>Number of Ph. Ds produced = 4</p> <p>i 10 index = 25 h index = 13</p>

Faculty Members	Major Thrust Areas of Research	Research Profile
 Prof. Hari Om Bansal (Professor)	Electrical Power System, Voltage Stability Analysis, Control System A I Techniques	Number of Ph. Ds produced = 5 i 10 index = 31 h index = 20
 Prof. Hitesh Datt Mathur (Professor)	Electrical Power System Operation and Control, Demand Side Management, Renewable Energy Resources, AI/ML applications in Smart Grid Technologies.	Number of Ph. Ds produced = 3 i 10 index = 31 h index = 18
 Prof. Dheerendra Singh (Professor)	Supercapacitor/ Batteries Modelling, WBG based Power Devices & Power Quality, NanoBiosensor fabrication	Number of Ph. Ds produced = 3 i 10 index = 18 h index = 15
 Prof. Karunesh Kr Gupta (Professor)	Digital Signal Processing , Instrumentation	Number of Ph. Ds produced = 6 i 10 index = 26 h index = 16
 Prof. Abhijit Rameshwar Asati (Professor)	VLSI design, Micro/ Nano electronics, VLSI test, CAD for VLSI, Embedded system design, high level synthesis, Hardware development for image processing applications, Artificial intelligence and machine learning applications, Artificial intelligence and machine learning hardware design etc.	Number of Ph. Ds produced = 4 i 10 index = 16 h index = 11
 Prof. Rajneesh Kumar (Associate Professor)	Electronics and Control, Soft Switching Invertors	Number of Ph. Ds produced = 2 i 10 index = 14 h index = 12



Faculty Members	Major Thrust Areas of Research	Research Profile
 <p>Prof. Praveen Kumar A.V (Associate Professor)</p>	<p>Radiofrequency and Microwave engineering, Antennas and propagation, Computational Electromagnetics, RF based physical and material sensors</p>	<p>Number of Ph. Ds produced = 2</p> <p>i 10 index = 16 h index = 12</p>
 <p>Prof. Rahul Singhal (Associate Professor)</p>	<p>Optical Waveguides and Networks, Antenna and Wave Propagation, Frequency Selective Surfaces</p>	<p>Number of Ph. Ds produced = 2</p> <p>i 10 index = 6 h index = 8</p>
 <p>Prof. Sainath Bitragunta (Associate Professor)</p>	<p>Communication Systems, Modeling, Design, and analysis</p>	<p>Number of Ph. Ds produced = 1</p> <p>i 10 index = 6 h index = 7</p>
 <p>Prof. Arnab Hazra (Associate Professor)</p>	<p>Electronic Devices, Nanomaterials, Graphene, Chemical Sensor, Resistive RAM</p>	<p>Number of Ph. Ds produced = 3</p> <p>i 10 index = 44 h index = 22</p>
 <p>Prof. Pawan Kamalkishor Ajmera (Associate Professor)</p>	<p>Signal Processing, Biometrics</p>	<p>Number of Ph. Ds produced = 2</p> <p>i 10 index = 13 h index = 11</p>
 <p>Prof. Nitin Chaturvedi (Associate Professor)</p>	<p>VLSI Design, Computer Architecture</p>	<p>Number of Ph. Ds produced = 1</p> <p>i 10 index = 8 h index = 8</p>

Faculty Members	Major Thrust Areas of Research	Research Profile
 <p>Prof. Vinay Chamola (Associate Professor)</p>	<p>Internet of Things, Embedded system design, Drones, Vehicular Networks, Healthcare, Security</p>	<p>Number of Ph. Ds produced = 2</p> <p>i 10 index = 103 h index = 49</p>
 <p>Prof. Syed M Zafaruddin (Associate Professor)</p>	<p>AI/ML for 6G Wireless Networks, Quantum Communication, High Frequency (FSO & THz) Wireless Systems, Holographic MIMO, Reconfigurable Holographic Surface, Reconfigurable Intelligent Surface, Distributed Signal Processing</p>	<p>Number of Ph. Ds produced = 2</p> <p>i 10 index = 16 h index = 12</p>
 <p>Prof. Puneet Mishra (Assistant Professor)</p>	<p>Intelligent control, Fractional order control, Fuzzy systems, Effect of renewable energy penetration in power systems</p>	<p>Number of Ph. Ds produced = 0</p> <p>i 10 index = 21 h index = 15</p>
 <p>Prof. Sujan Yenuganti (Assistant Professor)</p>	<p>Instrumentation, Sensor development using smart materials, MEMS and Energy harvesting</p>	<p>Number of Ph. Ds produced = 1</p> <p>i 10 index = 8 h index = 8</p>
 <p>Prof. Bijoy Krishna Mukherjee (Assistant Professor)</p>	<p>Nonlinear Control, Flight Dynamics, Estimation, Power Systems Operation and Control</p>	<p>Number of Ph. Ds produced = 0</p> <p>i 10 index = 2 h index = 7</p>
 <p>Prof. Meetha .V. Shenoy (Assistant Professor)</p>	<p>Embedded Systems, Robotics and Autonomous Systems, Networked Embedded Systems, Technologies for IoT, Swarm & Multi-robotic systems, VLSI Architectures</p>	<p>Number of Ph. Ds produced = 0</p> <p>i 10 index = 1 h index = 6</p>


Faculty Members	Major Thrust Areas of Research	Research Profile
 <p>Prof. Pankaj Arora (Assistant Professor)</p>	<p>Microelectronics and nanophotonics, optical sensors, Silicon photonics</p>	<p>Number of Ph. Ds produced = 1</p> <p>i 10 index = 11 h index = 10</p>
 <p>Prof. G Sai Sesa Chalapathi (Assistant Professor)</p>	<p>Edge Computing, Internet of Things, Unmanned Aerial Vehicles, Wireless Sensor Networks, IoT and Ai/ML in Precision Agriculture</p>	<p>Number of Ph. Ds produced = 0</p> <p>i 10 index = 6 h index = 7</p>
 <p>Prof. Aditya R. Gautam (Assistant Professor)</p>	<p>Power electronics for renewable energy, Power quality, active power filters, solar PV integration, microgrids</p>	<p>Number of Ph. Ds produced = 0</p> <p>i 10 index = 8 h index = 9</p>
 <p>Prof. Ashish Patel (Assistant Professor)</p>	<p>Renewable energy, microgrids, Power electronics for renewable energy</p>	<p>Number of Ph. Ds produced = 0</p> <p>i 10 index = h index =</p>
 <p>Prof. Sandeep Joshi (Assistant Professor)</p>	<p>Device to Device Communications, B5G/6G Communications, AI in Wireless Communications, Molecular and Power Line Communications</p>	<p>Number of Ph. Ds produced = 0</p> <p>i 10 index = 11 h index = 11</p>

Faculty Members	Major Thrust Areas of Research	Research Profile
 Prof. Rahul Kumar (Assistant Professor)	Electronic devices, Semiconductor physics, Material characterization, Epitaxial growth of III-V and group IV semiconductors, Nanostructure growth, Dissimilar Epitaxy, Nanofabrication	Number of Ph. Ds produced = 0 i 10 index = 17 h index = 12
 Prof. Sharda Tripathi (Assistant Professor)	Communication networks, AI powered solutions for IoT communication and applications, Smart grid networks, Design, analysis and development of 5G networks and beyond	Number of Ph. Ds produced = 0 i 10 index = 5 h index = 8
 Prof. Satyendra Kumar Mourya (Assistant Professor)	Semiconductor materials and devices, VLSI technology, Solid state gas sensors, Optoelectronics, Nanoelectronics, Thin films fabrication using PVD, SiC based electron devices, Electrochromic devices	Number of Ph. Ds produced = 0 i 10 index = 13 h index = 12

PhD Alumni Details

Name	Year	Affiliation	Supervisor	
Ashish Kumar Sharma	June 2015	Assistant Professor, Veer Surendra Sai University of Technology, Burla (Orissa)	Prof. Navneet Gupta	
Kavindra Kandpal	Nov., 2018	Assistant Professor, Indian Institute of Information Technology, Prayagraj, Allahabad	Prof. Navneet Gupta	

Karri Babu Ravi Teja	June, 2021	Senior engineer, QUALCOMM	Prof. Navneet Gupta	
Prachi Sharma	Sep., 2017	Associate Professor, Vellore Institute of Technology, Vellore	Prof. Navneet Gupta	
Praveen Kumar Sharma	July, 2022	Post-Doctoral Research Scientist, Seoul National University of Science and Technology, South Korea.	Prof. Navneet Gupta	NA
Anuj Kumar Ojha	July 2020	Technical lead, VVDN Technologies Pvt. Ltd	Prof. Praveen Kumar AV	
Ritish Kumar	May 2022	Assistant Professor, Ajay Kumar Grag Engineering College, Ghaziabad	Prof. Praveen Kumar AV	
Aishwarya Panday	Aug 2015	Tata Consultancy Services	Prof. Hari Om Bansal	NA
Ravinder Kumar	Nov 2019	NIT, Utrakhand	Prof. Hari Om Bansal	

Rahul Sharma	Nov. 2021	Software developer (Research) at Fujitsu Research	Prof. Sainath Bitragunta	
Punit Khatri	2022	Parijat Controlware Inc.	Prof. K. K. Gupta	NA
Satish Mohanty	2017	Honeywell Tech. Solution Lab, Bangalore	Prof. K. K. Gupta	NA
Ankush C Jahagirdar	2022	Muse Wearables, Bangaluru	Prof. K. K. Gupta	NA
J. C. Joshi	2022	Indian Army	Prof. K. K. Gupta	NA

Ph.D. thesis awarded in 2022-2024 (till March)

S.No	Name	ID	Topic	Supervisor	Co-Supervisor
1	Harshavardhan S.	2016PHXF203P	Computational model predictions of vowel level, age and hearing loss on concurrent vowel identification	Prof. Anantha Krishna Chintanpalli	-
2	Krishna Veer singh	2016PHXF005P	Energy Efficiency Improvement in Plug-in/Solar Hybrid Electric Vehicle using Ultra-capacitors	Prof. Hari Om Bansal	Dheerendra Singh
3	Teena Gakhar	2017PHXP0020P	Doping effects on TiO ₂ nanotube array based sensors for efficient detection of organic vapors	Prof. Arnab Hazra	
4	Jahagirdar Ankush Chandrakant	2016PHXF0202P	Condition Monitoring of Machines using Vibration and Acoustic Signal Processing Techniques	Prof. K. K. Gupta	-
5	Ankita Dixit	2017PHXF0414P	Investigations and Modeling of the Electronic Behavior of Carbon Nanotube Field-Effect Transistors (CNFETs)	Prof. Navneet Gupta	-
6.	Punit Khatri	2017PHXF0009P	Modeling and Estimation of Drinking Water Quality Index (WQI) based on Integrated Multi-Sensor Array	Prof. K. K. Gupta	Prof. R. K. Gupta
7.	Ritish Kumar	2016PHXF0007P	Design and Development of a Directional Ultra Wideband Slot Antenna	Prof. Praveen Kumar A.V	-
8.	Praveen Kumar Sharma	2016PHXF0502P	Design, Characterization and Analysis of Polydimethylsiloxane (PDMS) Based Flexible Antenna	Prof. Navneet Gupta	-
9.	Devesh Samaiya	2016PHXF0204P	On Foreground Extraction and Semantic Encoding of Visual Information in HEVC Compressed Domain	Prof. K K Gupta	-

10.	Jagdish Chandra Joshi	2013PHXF0506P	Design and Development of a Biometric Access Control System using Facial Images	Prof. K. K. Gupta	-
11	Srinath K	2013PHXF0105P	Development of Intelligent Pattern Recognition Algorithms for Assessment of Quality of Edible Oils	Prof. Surekha Bhanot	Prof. Panchariya
12	Gorla Praveen	2019PHXF0028P	Resource Provisioning and Management of Smart and Sustainable 5G Small Cells Base Stations	Prof. Vinay Chamola	-
13	Ziyaur Rahman	2017PHXF0416P	Optical Wireless Communication over Fog-Induced Fading: Performance Analysis and Mitigation Techniques	Prof. S. M. Zafaruddin	Prof. V. K. Chaubey
14	Himanshu Purohit	2015PHXF0502P	Person Authentication based on Multimodal Biometric Systems	Prof. Pawan Ajmera	-
15	Sambhavi shukla	2018PHXF0426P	Plasmonic nanostructure based optical sensor for refractive index and thickness sensing	Prof. Pankaj Arora	-
16	Poonam Poonia	2017PHXF0016P	Person authentication based on palm-print recognition	Prof. Pawan Ajmera	-
17	Sankalp paliwal	2018PHXP0434P	Design fabrication and control of a pressure sensor	Prof. Sujan Yenuganti	-
18	Akhilesh Kumar Mishra	2017PHXP0426P	Studies on intelligent controllers for dynamical plants with nonlinear actuators	Prof. Puneet Mishra	Prof. Hitesh Datt Mathur
19	Pranay Bharadwaj	2020PHXF0026P	Analysis and Design of Terahertz Wireless Communication Integrated with Access, IoT, and Cell-Free Networks	Prof. S.M. Zafaruddin	
20	Ashish Kumar Verma	2018PHXF0017P	Investigations on Frequency Selective Reflectors Towards Gain Enhancement of Wideband Planar Compact Antennas	Prof. Rahul Singhal	
21	Radha Bhardwaj	2019PHXP0031P	Development of functionalised 2D nanomaterial based FET sensors system for breath analysis applications	Prof. Arnab Hazra	
22	Suraj Baloda	2018PHXF0445P	Carbon nanomaterial-based flexible pressure/strain sensors for wearable electronics	Prof. Navneet Gupta	Dr. Sumitra Singh
23	Abheek Gupta	2016PHXF0423P	Digital Hardware Implementation for Smart Portable Device for Water Quality Indexing using ANN-based Data Augmentation	Prof. Anu Gupta	Prof. Rajeev Gupta

Ph.D. thesis submitted (till March)

S.No	Name	ID	Topic	Supervisor	Co-Supervisor
1	Amit Chougule	2020PHXF0415P	Artificial Intelligence Enabled Vehicular Vision and Service provisioning for Advanced Driver Assistance Systems (ADAS)	Prof. Vinay Chamola	

TEACHING/RESEARCH LABORATORIES

S.No	Name of Laboratory	Type of Lab
1	Microelectronics/ VLSI Design Lab (O-Lab)	Teaching and Research
2	Embedded Controller Application Centre	Teaching and Research
3	Virtual Instrumentation Lab	Teaching
4	Instrumentation Technology Lab	Teaching
5	Power Electronics Lab	Teaching and Research
6	Electrical Machines Lab	Teaching
7	Optical and Wireless Communication Lab	Teaching and Research
8	Communication Engineering Lab	Teaching and Research
9	Analog & Digital Electronics Lab	Teaching
10	Nanoelectronics and Device Lab	Teaching and Research
11	IoT and Sensor Lab	Teaching and Research
12	Flexible Electronics Lab	Teaching and Research

VLSI Lab (O-Lab)



Power Electronics Lab



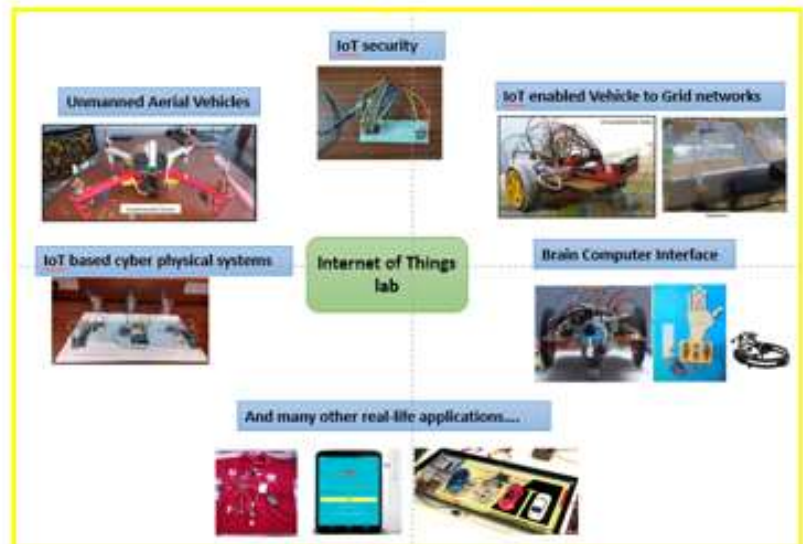
Sensor/Device Lab



Electrical Machine Lab



Virtual Instrumentation Lab



For Further Information, Contact

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