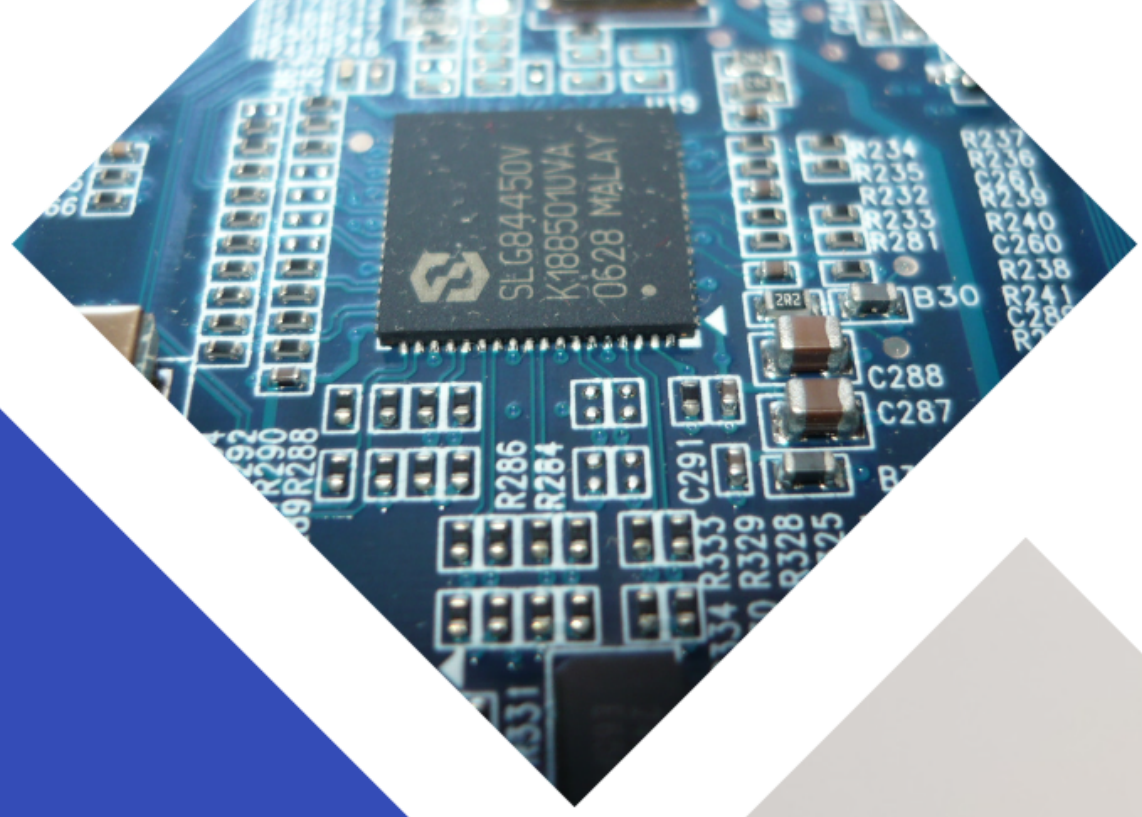
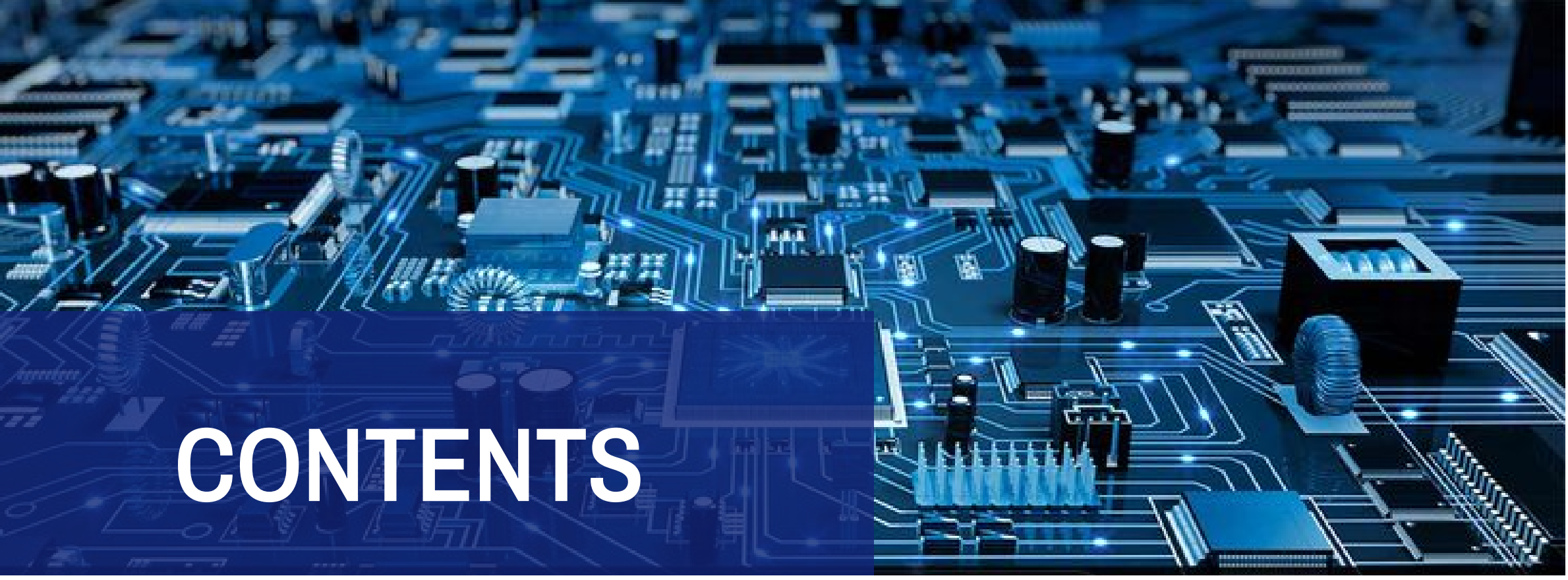


INDIAN INSTITUTE OF TECHNOLOGY PATNA

Department of Electrical Enginering

Placement Brochure 2023-24



CONTENTS

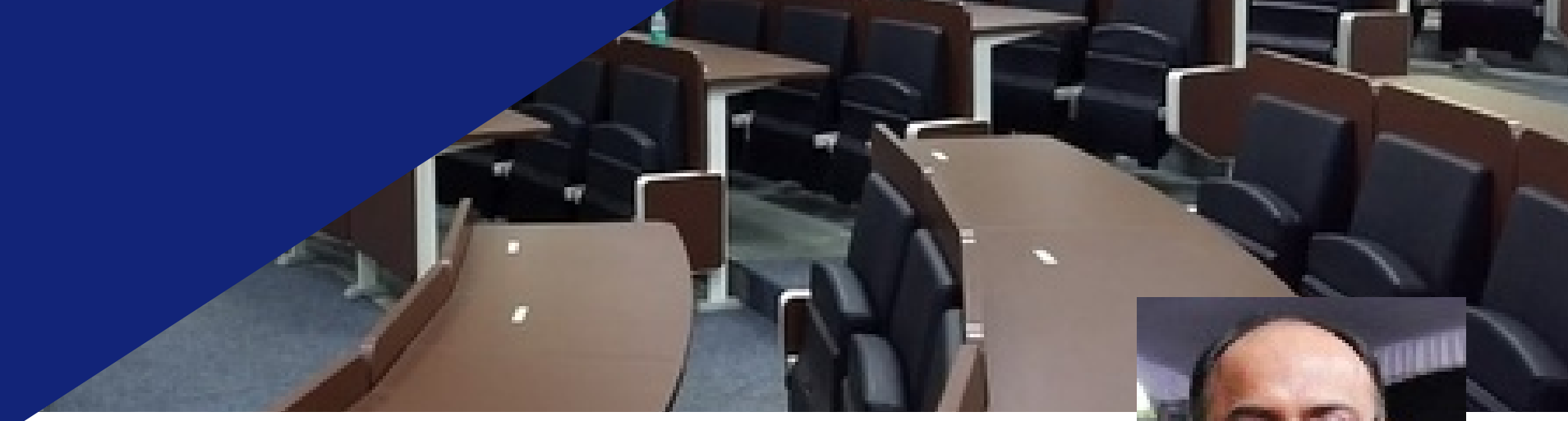
About Us

The Department of Electrical Engineering has been one of the initial departments at the Indian Institute of Technology, Patna established in the year 2008. The Department has been known to be at the forefront of research and innovation alongside imparting quality education and training.

The department offers instruction at the undergraduate, postgraduate and doctoral levels with the aim of providing a sound background in the areas of electrical and electronics engineering. The courses are tailored to the needs of technical manpower in the fast-expanding fields of Electronics and Communication Engineering with a focus on Advanced Digital Signal Processing, Biomedical And Speech Processing, Instrumentation and Control, VLSI, Image Processing and Computer Vision, Power System and Power Electronics.

Laboratories for Basic Electronics, Analog and Digital Electronics, Communication, Digital Signal Processing, Embedded Systems, VLSI, Electrical Machines, Power Electronics and Power Systems are fully operational with advanced technologies, hardware equipment and necessary software. The department has access to IEEE Explore Digital Library and other online journals in addition to High End Computational Servers and software like MATLAB, GAMS, CAD tools and LabVIEW are available with the department to accelerate the research.

The Electrical Engineering Department of IIT Patna has already earned world recognition for its excellence in R&D work. Recently, two faculty members from the department have been ranked among the top 2% scientists in the world by Stanford University. There is strong emphasis on research which has attracted sponsorship from national as well as international organizations and the industry.



HoD's Address

Dr. Preetam Kumar

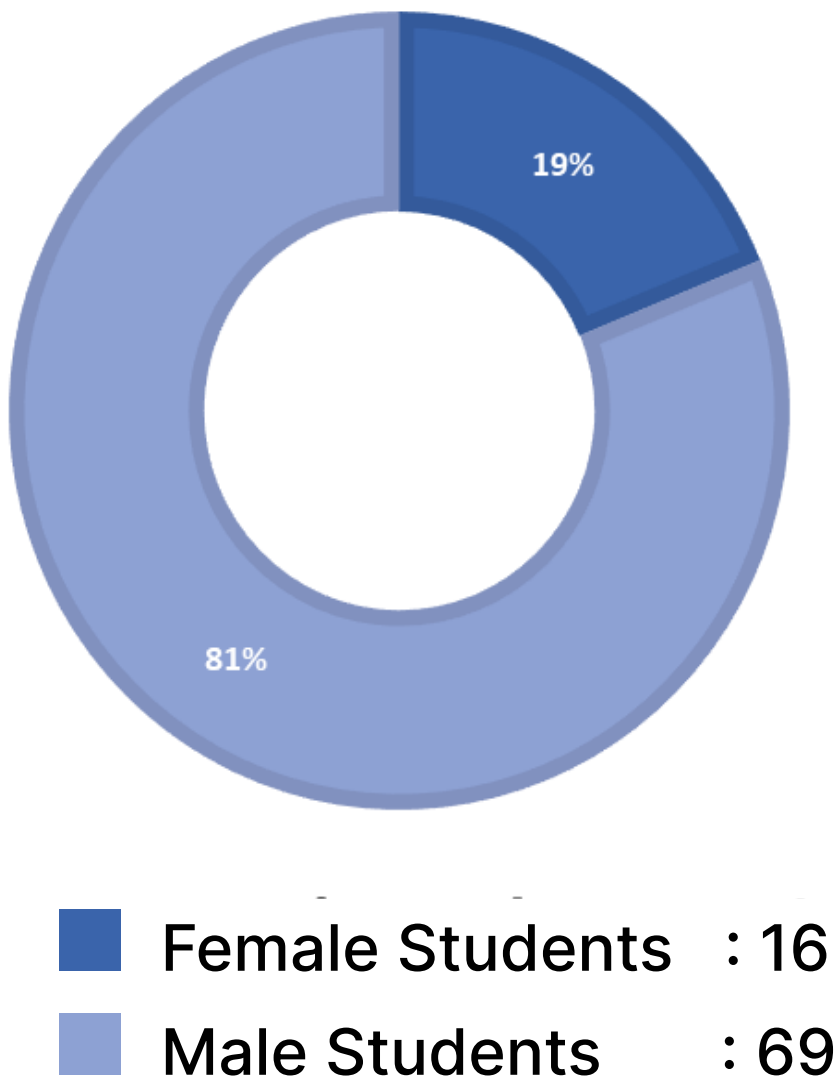
The Department of Electrical Engineering at IIT Patna offers undergraduate programs that emphasize the fundamentals of electrical engineering and electronics technology that promises a sustainable future with the aid of technology. The department offers a profound set of advanced courses ,besides the Master of Technology (MTech) in Communication System Engineering and the Doctor of Philosophy (Ph.D) in Electrical Engineering.

Every faculty member is well versed in his domain and hold esteemed positions in their respective field of research and have earned doctorates from reputed universities. The Department has a Centre of Excellence in Teaching Learning Centre for Internet-of-Things (IoT), Smart Grid, and Smart Building sponsored by Department of Higher Education Ministry of Human Resource Development (MHRD), Government of India. This centre has brought the department at par with the international competition. It provides unique opportunities for electrical engineering graduates and teachers of India to participate in learning the IoT related projects.

Students of the Department of Electrical Engineering are known throughout India for their enthusiastic participation in professional organisations and events. We regularly revise our curriculum according to the need of today's research and industry applications. We try emphasizing the importance that electrical engineering has in today's world and how it will shape the coming future. The primary focus of our curriculum is to convey technical know-how to students, promote their problem solving skills and innovation of new technologies. We carry out collaborative and interdisciplinary research in various industries and research centres worldwide.

We have modern research and laboratory facility in the department. Our faculties have been conferred with many prestigious awards at national and international levels. We organise international symposia and conferences in the department. The Department undertakes a continuous process of setting up experimental and computational facilities for taking up research & development and consultancy activities in various fields as also to produce state-of-the-art research output. The department looks forward to contribute in solving the technological challenges of the rural India with active participation from all sections of the society. The department takes pride in producing well rounded, professionally competent undergraduates and graduates.

Demographics



Placements information

Total students with offers	:	63
Average CTC	:	2709464

Courses offered

SIGNAL PROCESSING

Signals and Systems forms one of the core areas at Electrical Department of IIT Patna. Faculty and students at IIT Patna are involved in various sponsored and non-sponsered interdisciplinary projects in domains such as circuit design, communication, seismology, biomedical engineering, energy generation and distibution, speech processing etc.

Courses offered:

- Signal, System and Networks
- Digital signal processing
- Advanced digital signal processing
- Visual surveillance systems
- Advance Biomedical Signal Processing

Laboratory Facilities

- Digital Signal Processing Laboratory

Sponsored Projects:

Geospatial Location Estimation and Navigation in Autonomous Sensor Networks/Smart City
Cyber-Physical Systems for M-Health

POWER SYSTEMS AND POWER ELECTRONICS

Power System and Power Electronics is one the oldest divisions that is functional since the inception of Electrical Engineering at IIT Patna. Students and faculties are involved in various funded projects and coursework.

Courses offered:

- Electrical Machines
- Power Systems
- Power Electronics and Drives
- Electrical Power System Operation and Control
- Distributed Energy Resources

Laboratory Facilities:

- Electrical Machines Laboratory
- Advanced Electrical Lab

Equipments:

- WIRELESS POWER TRANSFER: A next generation power transmission system
- Transmission line simulator
- Fuel cell training system

Courses offered

CONTROL SYSTEMS

Control Systems is an important part of the Electrical Department. This field is aimed at imparting the best education to students, which leads to cutting-edge research. There are motivated professors and students involved in this field working in areas like control of power system, control of relay-based networks, etc.

Courses offered:

- Control Systems
- Advanced Control Systems
- Electrical power system operation and control

Laboratory Facilities

- Instrumentation and Control Laboratory

Sponsored Projects:

Descriptor System: Modeling and Control in Infinite Dimension Space

COMMUNICATION ENGINEERING

Communication being a specialized branch involves teaching, research, and consultancy works. At IIT Patna, both faculty and graduate and undergraduate students are engaged in fundamental and applied research projects in Communication. These are being sponsored by various agencies like DST, MeitY, etc.

Courses offered:

- Principle of communication
- Electromagnetic theory
- Communication System
- Optical Communication
- Wireless Communication

Laboratory Facilities:

- Communication Laboratory
- Optical Communication and Networking Laboratory
- Signal Processing for wireless communication lab

Sponsored Projects:

- Design of Blind Modulation Classification for MIMO-OFDM and MIMO-SC-FDMA System through FPGA Module and Testbed Implementation
- Design and Analysis of High-Performance RF MEMS-based Electronically Reconfigurable Filters for Wireless Communication Applications
- Blind Symbol Timing Offset (STO) and Carrier Frequency Offset (CFO) Estimation and Implementation over OFDM and MIMO-SC-FDMA testbed

Courses offered

VLSI & EMBEDDED DEVICES

The Department of Electrical Engineering at IIT Patna undertake various research work and projects in all areas of VLSI Design & Embedded Systems.

Courses offered:

- Semiconductor Devices and Circuits
- Analog Integrated Circuits
- Digital circuits and microprocessors
- Introduction to VLSI design
- Embedded Systems
- Electronics and Instrumentation
- Radiofrequency integrated circuits
- Digital VLSI Design
- CMOS Modelling

Laboratory Facilities

- VLSI Design Laboratory
- Embedded Systems Laboratory

Sponsored Projects:

- Design and FPGA prototyping of multicarrier multiple access schemes for variable rate multimedia satellite communication
- Design and Implementation of Novel VLSI Architecture of PRNG for Cryptography Applications

HSS AND OPEN ELECTIVES

Besides core courses, students are also offered many electives courses which ultimately help in their all round development.

HSS Courses:

Communication Skills for Engineers; Introductory Microeconomics; Fundamentals of Linguistic Science; Introductory Sociology; Introductory Macroeconomics; Literature: Voices and Cultures; Language, Human Mind and Indian Society; Cognition Language and Computation; Health Care Management; Financial Economics; Diasporic Literature, Sociology of Development, Financial Analytics, Fundamentals of Cognitive Science, Industrial and Organizational Psychology.

Open Electives:

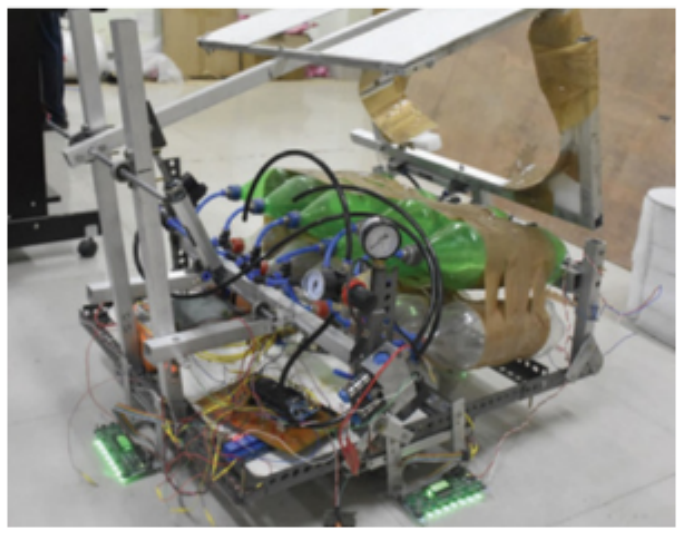
Optics and Lasers; Vacuum Science and Techniques; Introduction to Data Science; Introduction to Nanomaterials; Python Programming; Solid State Devices; Photovoltaic's & Fuel Cell Technology; Green Chemistry and Technology; Introduction to Computational Topology; Entrepreneurship; Industrial Waste and Management.

Students' Activities

TECHNICAL

DD India Robocon

Robocon team of IIT Patna, having majority members from Electrical department, bagged the 2nd position in the first stage and 24th in the second stage of DD India Robocon, 2019.



Competitive Programming

Electrical branch has a large number of avid competitive programmers who regularly participate in programming contests. One of them also represented IIT Patna along with his team in 2018 and 2019. Current placement season hosts students, many of whom are experts and candidate masters in Codeforces and 6 star rated on Codechef.

Inter IIT Tech Meet

Students from the branch actively participate in Inter IIT Tech Meets held every year. In the Inter IIT Tech Meet 10.0, IIT Patna ranked 9th among the 23 participating IITs and also won 1 Gold, 1 Silver and 1 Bronze medal.

INTER IIT TECH MEET
IIT KHARAGPUR | 28-30 JAN 2022

GSOC

Students from our department actively participate in Google Summer of Code and are involved in various projects.

Google
Summer of Code

Students' Activities

TECHNICAL

IEEE Student Branch

IEEE Student Branch of IIT Patna was established to develop and promote professional identity in IEEE's designated fields of interest: Science, Technology, Engineering, and Mathematics(STEM) in IIT Patna. As a part of it, workshops, seminars, and other events are regularly conducted to make students aware of technical achievements in the STEM fields and encourage them to pursue a promising careers in those fields.

Club Activities

Sparkonics is an association of the students motivated to learn, create and teach the basics of electronics, explore the upcoming technology and implement them through mini-projects. The club also conducts events, classes, and meetings for the department. With the guidance and help of the department professors, the club provides students a platform and resources to gain practical.

Entrepreneurial

Students from our department organize various workshops and competitions held by the E-cell IIT Patna. Some students are also involved in establishing a startup.

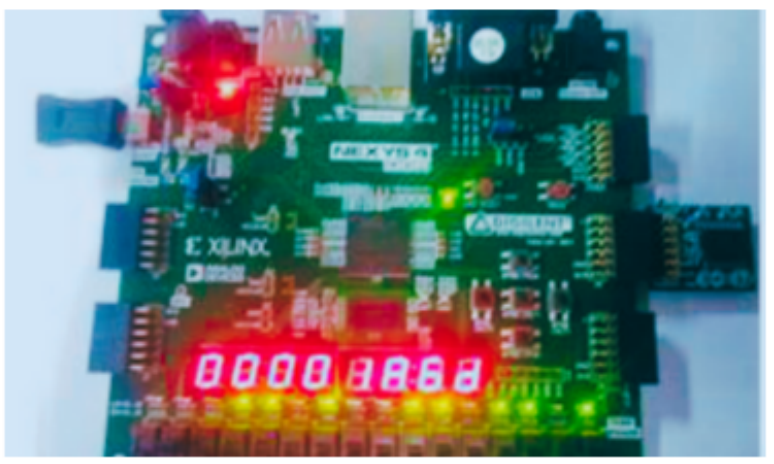
Social

Under the name of Prayatna, students of IIT Patna try to give continuous quality education to underprivileged children. The Core Team, which looks after the administration part, consists of 3 electrical undergraduate students.

Students' Projects

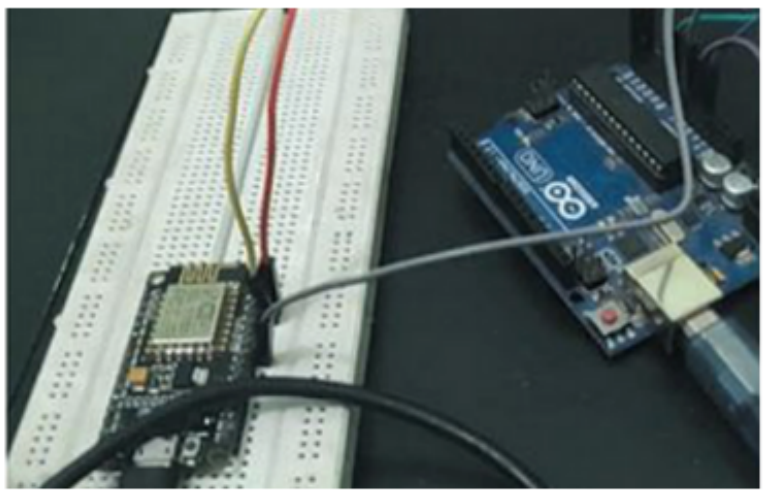
RISC-V 321M Microcontroller Development

The project deals with designing various modules related to SPI Interface for a RISC-V 32IM core.
The modules were verified on a Xilinx Boards with external PMOD Flash.



IOT Based Air conditioner controller

This is a smart device for controlling the temperature of our college server to protect from overheating. Arduino and Node MCU were used to design the controller and an app that captured data from device using Google Firebase.



8 Bit Retro CPU from scratch

This is 8 bit CPU from 74 series logic ICs, which is comparable to early 80's era CPU performance

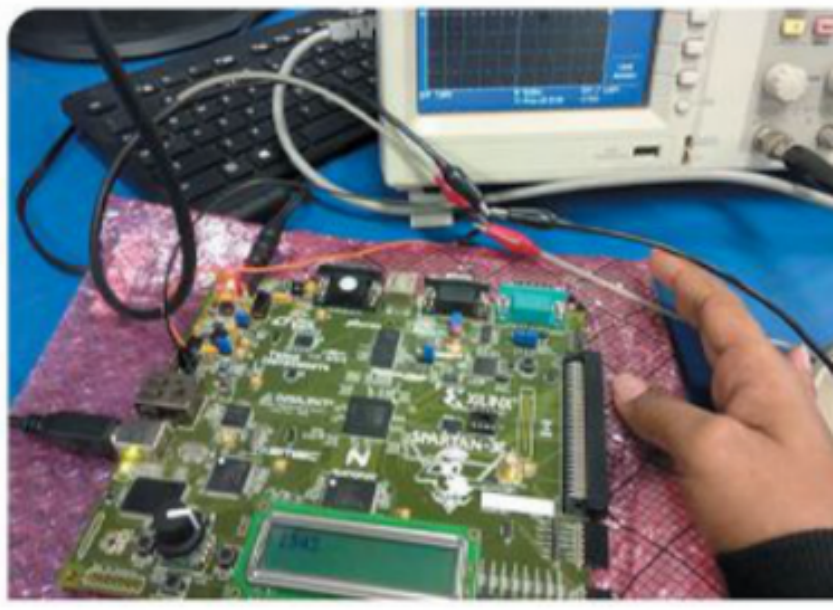
Quadcopter Drone from scratch

It is an Arduino based PID controlled quadcopter drone. It includes sensors like gyroscopes, accelerometer, altimeter etc..

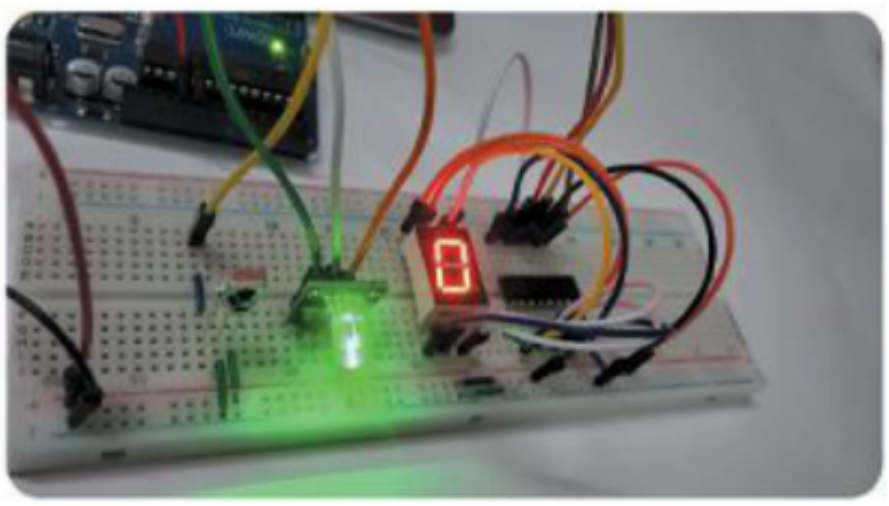
Students' Projects

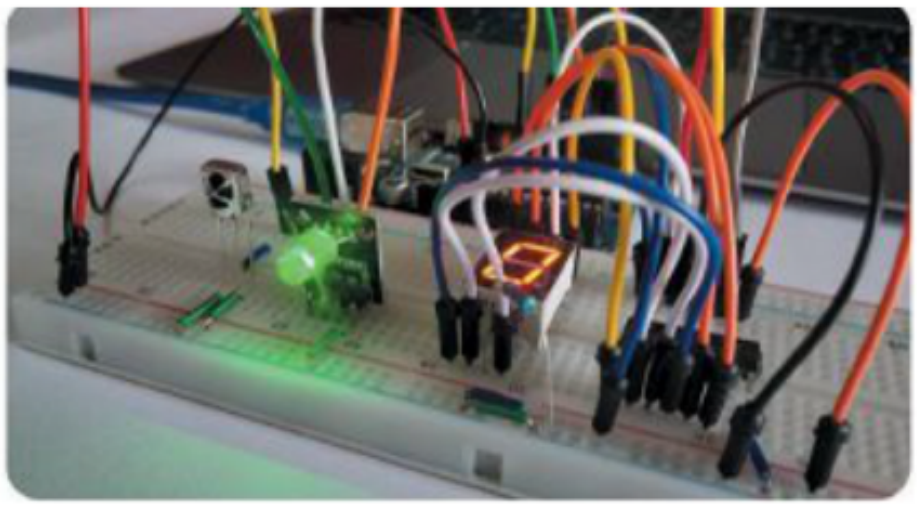
8 bit Reed Solomon Encoder and Decoder

The project involves the hardware implementation of a 8 bit (255,249) Reed Solomon Encoder & Decoder. It includes the implementation of the multiplier, divider, encoder, syndrome, error polynomial evaluation, Chien Search Blocks. The verification was done by implementing the same algorithm in MATLAB and with a randomly generated sequence of symbols in Python which was finally matched with the verification waveform in Vivado.



IR Remote Lock System





It is an IR remote controlled password lock system using VS1838b infrared receiver module and Arduino Uno. Inputs given through remote are decoded by Arduino, and matched with password. If input matches, system is "unlocked" and reset button is pressed for locking it again.

Internships

Research

Past Recruiters

cadence
Google
<CODE_NATION>
इसरो ISRO
इंडियनऑयल IndianOil
Goldman Sachs
Mahindra
amazon
बी एच ई एल BHEL
SIEMENS
ZS
MathWorks
Infosys
Finisar Systems
Mu Sigma
Microsoft
ITC Limited
tcs
Capgemini
SAMSUNG
CISCO
Deloitte.
SIGMOID
हिन्दुस्तान पेट्रोलियम HP
Morgan Stanley
Bharat Petroleum
Adobe
आरईसी REC असीमित ऊर्जा, अनन्त संभावनाएं Endless energy. Infinite possibilities.
Hero
intel
Texas Instruments
ORACLE
भारत इलेक्ट्रॉनिक्स BHARAT ELECTRONICS QUALITY, TECHNOLOGY, INNOVATION
zomato
Qualcomm

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