PLACEMENT BROCHURE
2020-21
VLSI & Embedded System
Indian Institute of Technology Patna

About Us

Indian Institute of Technology Patna is one of the new IITs established by an Act of Parliament in 2008. The city of Patna, the capital of the State of Bihar, has historical significance. It was a knowledge centre in the past which attracted visitors and scholars from many places all around the world. Some of the historical legends from this region include Lord Gautam Buddha, Lord Mahavir, Guru Govind Singh, the famous astronomer Aryabhata and the first President of India, Dr. Rajendra Prasad.

IIT Patna is developing fast and would like to come up as an institute of excellence promoting intelligent, hardworking and technically curious minds. We have already developed state-of-the-art infrastructure including classrooms and laboratories in imparting world class education. We have a wide range of research programmes, and many curricular and extra-curricular events to ignite the minds of students.

In order to raise the quality of our education and research, we have already signed MoUs with leading international universities and some more MoUs are in the process of finalization. We are promoting exchange programmes with the best schools in the world, and also a large number of scientists and technologists have visited IIT Patna campus during the last four years. We envision developing this institute as one of the top institutes of overall education
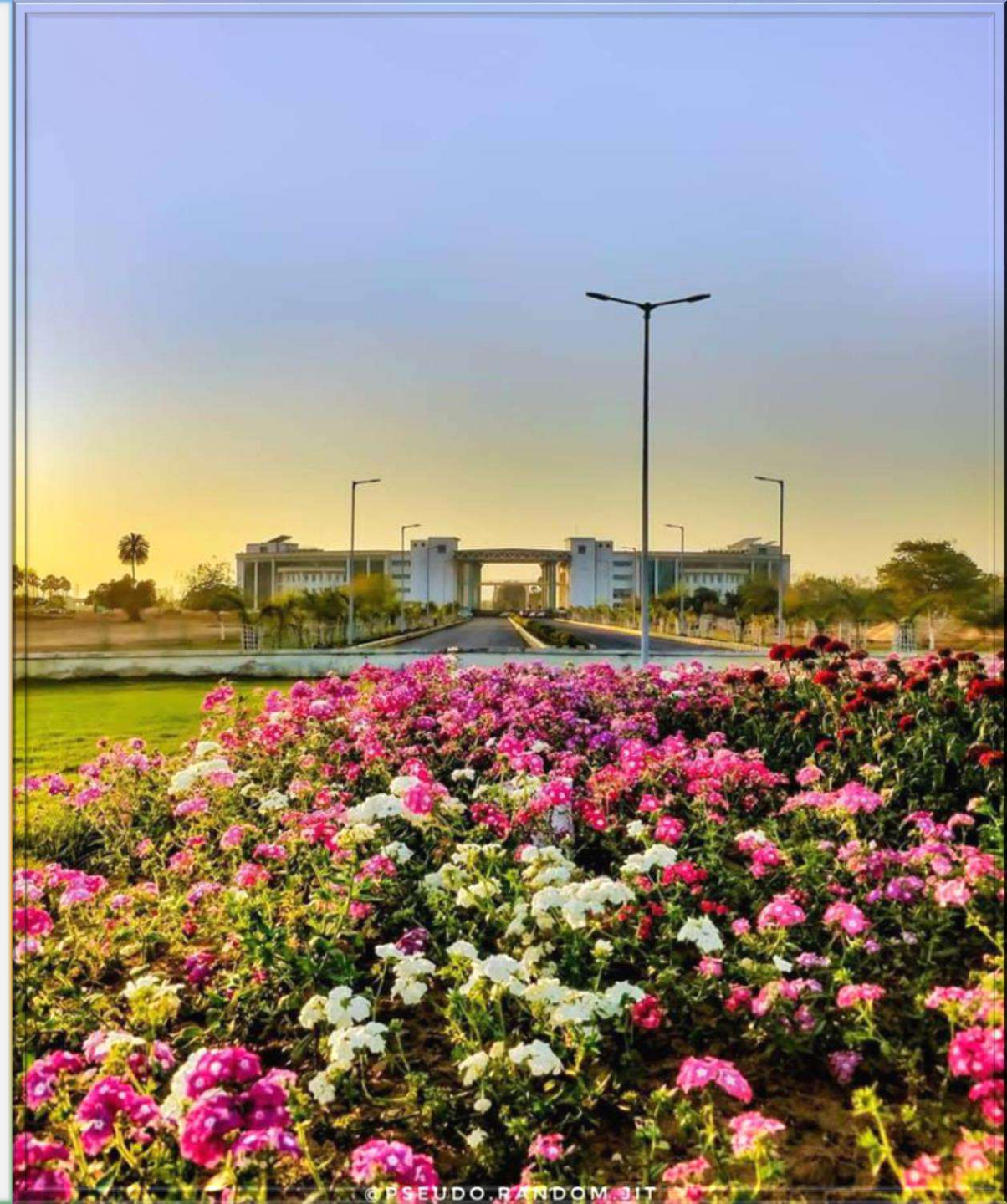
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VLSI and Embedded Systems branch is one of the most sought after master's programmes in the present world. Keeping in mind the scope of VLSI industry, we started this program in 2017 which focuses on providing students the necessary skills in the respective areas blended with internships, projects and certification programs that aid to build young engineers suitable for industry, academics and research. At IIT Patna, It is an inter-disciplinary programme where students from various undergraduate backgrounds are enrolled.

We have well established VLSI labs, embedded systems labs, SoC labs and PCB design and fabrication labs for students to align their theoretical knowledge with the practical aspects and making them well prepared to solve the challenging real life engineering problems when they graduate out.

This programme has been setting exemplary standards since its inception and is well on course to continue the tradition for years to come. This is evident from the fact that the students are doing internship in reputed companies like Intel, STMicroelectronics, Thinci Semiconductors, etc. and getting multiple placements offers.

With best wishes!

Dr. Ahmad Ali

Curriculum

Core Courses

- ❖ Digital VLSI Systems
- ❖ Embedded Systems
- ❖ Analog & Mixed Signal Systems
- ❖ High Performance Computing System

Electives

- ❖ MOS Modelling and Simulation
- ❖ Radio Frequency Integrated Circuits
- ❖ Low Power Circuits and Systems
- ❖ VLSI Technology
- ❖ Sensors & Actuators
- ❖ Digital Image Processing
- ❖ Introduction to Deep Learning
- ❖ Foundations of Machine Learning
- ❖ Advanced Bio-Medical Signal Processing
- ❖ Deep Learning for Video Surveillance Systems

Laboratories

VLSI Laboratory

- ❖ Tools: Cadence, Synopsys & Mentor Graphics
- ❖ PCB Design and Fabrication
- ❖ Full Custom IC Design
- ❖ Semi Custom ASIC Design

Embedded System Laboratory

- ❖ Spartan-3E FPGA Board
- ❖ PIC Development Board
- ❖ ARM Cortex M3
- ❖ Arduino UNO Board
- ❖ Raspberry Pi

FACULTY PROFILE

| Department of Electrical Engineering	
Dr. Pramod Kumar Tiwari	Modeling, Simulation and Fabrication of Semiconductor Devices.
Dr. Kailash Chandra Ray	VLSI architectural design, VLSI Signal Processing, Digital VLSI Design, Hardware design methodologies, FPGA based System Design, CORDIC.
Dr. Yatendra Kumar Singh	RF MEMS, Computational Electromagnetics
Dr. Jawar Singh	Semiconductor Devices/Microelectronics/VLSI/ Modeling and Simulation of Classical and Non- classical devices
Dr. Saurabh Kumar Pandey	Optoelectronics Devices, Semiconductor thin films, Solar Cells. Micro-Nanoelectronics, MEMS, Modeling & Simulation
Dr. Mahesh Kumar H. Kolekar	Digital Signal, Image and Video Processing, Video Surveillance, Tele-Medicine
Dr. Udit Satija	Machine and deep learning, Biomedical signal processing

Department of Computer Science & Engineering	
Dr. Jimson Mathew	Fault Tolerant Computing, VLSI, Design and Methodologies, Reliability Aware, Hardware Security
Dr. Arijit Mondal	CAD for VLSI, Analog EDA.

RESEARCH PROJECTS

1. Design and FPGA prototyping of multicarrier multiple access schemes for variable rate multimedia satellite communication.

2. Design and implementation of novel VLSI architecture of PRNG for cryptography applications.

3. SMDP-C2SD

4. Modeling simulation and performance optimization of Re-S/D SOI MOSFET.

5. Analytical investigation of sub-threshold behaviour of SiNT FETs.

6. Exploration of 8/9 nano meter process variation immune doping and junction free devices and their circuits

7. Design and development of RF energy harvesting circuits for low power electronics devices.

8. Design and analysis of high performance RF MEMS-based electronically reconfigurable filters for wireless communication application.
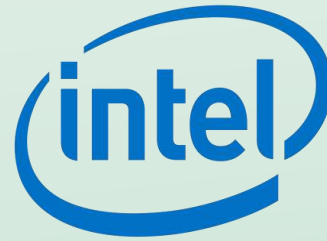
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