

Indian Institute of Technology, Guwahati



# Placement Brochure 2015-16

Electronics and Electrical Engineering

## TRAINING & PLACEMENT CELL

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# Message from the Head of the Department



## **Prof. Chitrlekha Mahanta**

HOD, Department of EEE  
IIT Guwahati

The Department of Electronics and Electrical Engineering (EEE) endeavors in imparting quality education and training to the students in different areas of electronics, electrical and communication engineering. This is one of the oldest departments of IIT Guwahati and over the years it has continually upgraded itself in terms of academic programs, laboratory facilities and research infrastructures.

The Department attracts best of the students for its Bachelors, Masters and PhD programs. The faculty members in the departments are experts in their respective fields and take extreme care to shape the young talents. Apart from training they receive in the Department, the students also get exposures at the national and international levels through internship, exchange programs and participation in conferences and competitive events.

Over the years, our graduates and post graduates have found employment in leading national and international organizations and many of our students have made us proud through the achievements in their professional career.

I extend hearty welcome to all the potential recruiters who are interested in recruiting the students of Department of EEE.

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# About the Department

Established during the inception of the institute in 1995, the Department of Electronics and Electrical Engineering has been at the forefront of research and innovation, working on its primary objective of imparting quality education and training whilst leading on the innovation curve. The department offers a comprehensive array of courses that encompass the undergraduate, postgraduate and doctoral levels.

The department's reputed faculty brings their expertise to bear on a wide variety of areas in electronics and communication engineering, with emphasis on Communications, Advanced Digital Signal Processing, Biomedical and Speech Processing, Instrumentation and Control, VLSI, Image Processing and Computer Vision, Power System and Power Electronics.

With a view to advance its twin interests of education and research, the department offers a 4 year undergraduate Bachelor of Technology course in Electronics and Communication Engineering as well as in Electronics and Electrical Engineering, a 2 year post graduate Master of Technology course (in 2 specializations of signal processing and VLSI) and Ph. D. (in the various aforementioned specialization of signal processing and VLSI) and Ph. D. (in the various aforementioned specialization areas of faculty).

“In its brief but illustrious history, the EEE Department of IIT Guwahati had already earned global recognition by its cutting edge R&D work. Research is nurtured both through academic programs run by the Department and through sponsored programs funded by national as well as international organizations and the industry.”





# Academic Programmes

## 1. BACHELOR OF TECHNOLOGY

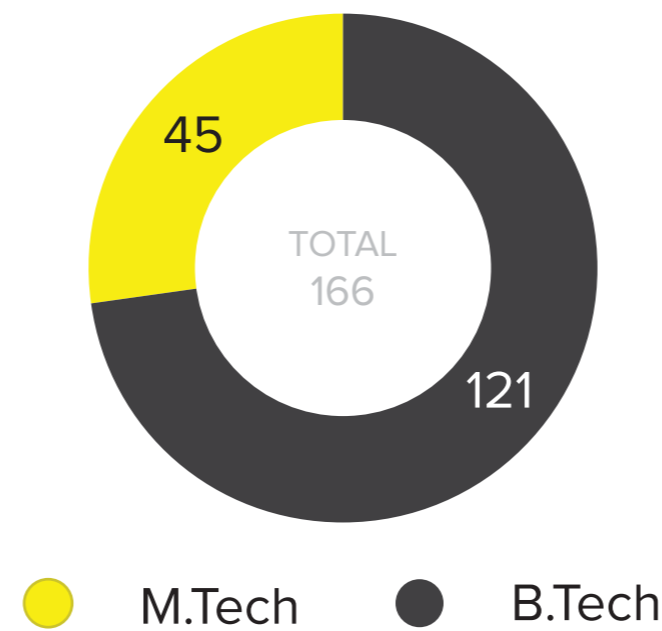
- a) Electronics and Communication Engineering
- b) Electronics and Electrical Engineering

## 2. MASTER OF TECHNOLOGY

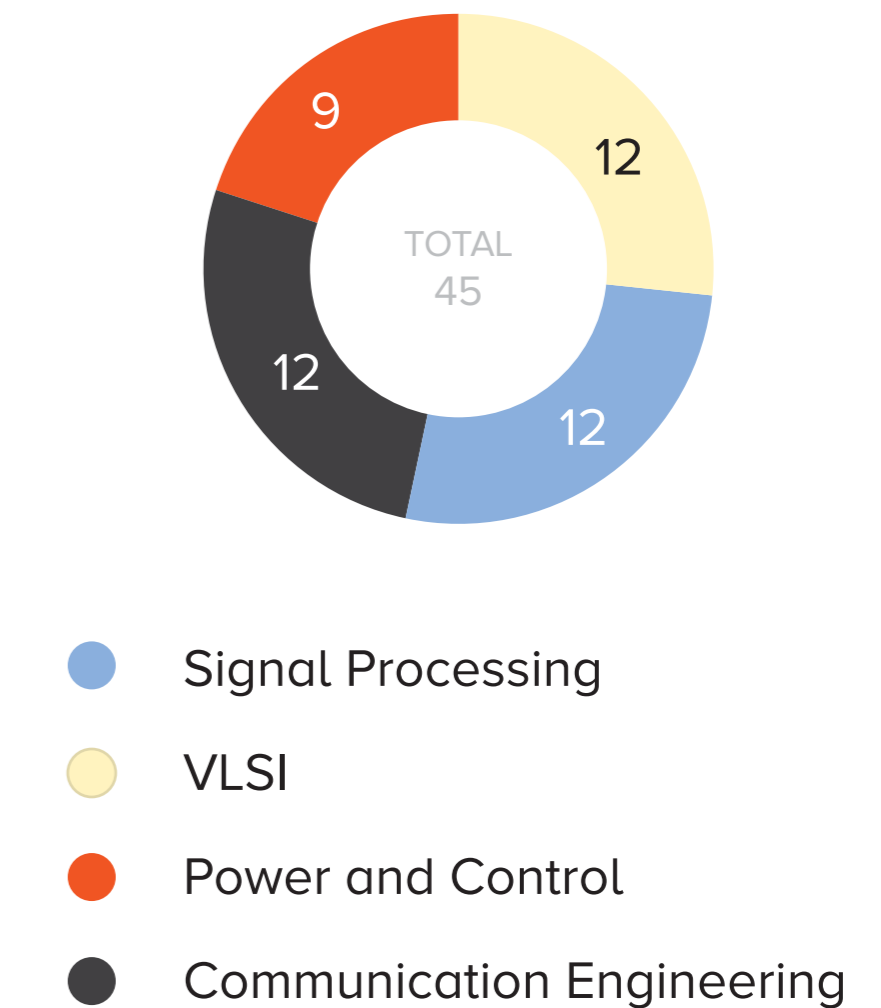
- a) Signal Processing
- b) VLSI
- c) Power and Control
- d) Communication Engineering

## 3. Doctor of Philosophy | PhD

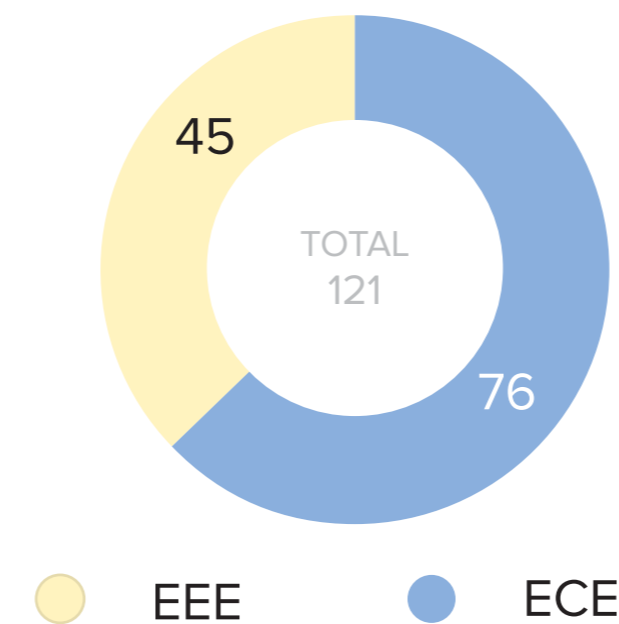
DEPARTMENT STRENGTH



M.TECH BATCH STRENGTH



B.TECH BATCH STRENGTH



# Courses offered

## MATHS, ANALYTICS & COMPUTING

Pattern Recognition and Machine Learning\*  
Data Structures and Algorithms  
Linear Algebra and Real Analysis  
Differential and Integral Calculus  
Probability and Random Processes  
Introduction to Parallel Computing\*

## SIGNAL PROCESSING

Image Processing\*  
Digital Signal Processing  
Computer Vision\*  
Biomedical Signal Processing\*  
Speech and audio signal processing  
Signals and Systems

## DEVICES

Semiconductors and Devices  
VLSI Design  
Embedded Systems  
Digital Circuits and Microprocessors  
CAD for VLSI\*

## POWER AND CONTROL

Modeling and Simulation of Dynamic System\*  
Electrical Power System Operation and Control  
Advanced Control Systems  
Power Electronics and Drives  
Multivariable Control Theory\*  
Electrical Machines  
Electric and Hybrid Vehicles\*

## COMMUNICATION ENGINEERING

Communication Networks  
Mobile Communication\*  
Digital Communication.  
Information Theory and Coding.  
Queuing Systems\*  
Error Control Codes\*  
Principles of Communication.

## LAB COURSES

Computing( C ) Laboratory  
Digital Circuits Laboratory  
Analog Circuits Laboratory  
Communication Laboratory  
VLSI Laboratory  
Electrical Machines Laboratory  
Control and Instrumentation Laboratory  
Microwave Engineering Laboratory  
Advanced Electrical Engineering Laboratory

*\*elective courses*

# M.Tech Specializations

## SIGNAL PROCESSING

Optimal and Adaptive signal processing.  
Multimedia Security.  
Image processing & Computer vision  
Speech processing & technology  
Signal processing algorithms and architectures.  
Sparse representation  
Detection and Estimation Theory

## DEVICES

Digital IC Design  
System Design And Architecture  
Analog IC Design  
VLSI DSP and Architecture  
Semiconductor IC Technology  
Solid State Devices  
VLSI CAD

## POWER AND CONTROL

Advanced Power Systems & electronics  
High Voltage DC Transmission  
Synchrophasor Technology  
Linear , Nonlinear Systems & Control  
Multi Variable Control Theory  
Modelling and simulation of Dynamical Systems  
Adaptive & Optimal Control

## COMMUNICATION ENGINEERING

Data Communications & Networks  
Wireless Communications  
Advanced Topics in Communication systems  
Information theory & Coding  
Mobile Communication  
Detection & Estimation Theory  
Communication Theory

## LAB COURSES

Digital and analog IC Design (Mentor Graphics  
ELDO and IC station)  
System Design and Architecture (Xilinx ISE and  
MODELSIM)  
Applied Control Lab Using MATLAB  
Advanced Power & Control Lab  
Communication System Design and stimulation  
Labs  
Signals and Systems Simulation Lab  
Digital Signal Processors Lab

# Research and Development

In addition to all the theoretical and practical courses, the undergraduate and graduate students actively contribute to the ongoing research in the department. Every student of B.Tech and M.Tech has to mandatorily complete a research project in their ultimate and penultimate semesters. There is also a compulsory design project(Hardware project) for B.Tech students in their sixth semester. The research activities in the department are broadly carried out under the following six groups:

1. Image Processing and Computer Vision
2. VLSI
3. Power System and Power Electronics
4. Communication and Advanced DSP
5. Biomedical and Speech Processing
6. Control and Instrumentation

These research projects are sponsored by both government and private institutions like ISRO,

Indian Army Technical Board, DST, DIT, Motorola, Semiconductor Research Corp., Durham and foreign institutions UK-INDIA Education and Research Initiative (UKIERI), IDIAP Switzerland.

Some flagship research projects being carried out by the department: (CNFET) Based Amplifiers

1. Design of Carbon Nanotube Field Effect Transistor (CNFET) Based Amplifiers
2. High Performance Computing using GPU
3. Characterization and Compensation of Acoustic and Linguistic Mismatch for Robust Automatic Recognition of Children's Speech
4. Navigation and Path Planning of Mobile Robots and Extension to Multi-Agent Systems
5. Dual Mechanical Port Based Electric Vehicle Power train
6. Efficient downloading, transmission, error correction, encryption of IRNSS data
7. Information extraction from Multi polar radar data

## STUDENT ACHIEVEMENTS

Undergraduate students "Team Aarogya" won the GE Edison challenge

Med Assist Team won the best video demo award at Texas Instruments Innovation Challenge : IADC 2014 for their project titled "MedAssist : Automated Medication Kit".





# Student Activities

## CEPSTRUM

Cepstrum is the students' society of the department. The society plays a pivotal role in enhancing soft-skills helping students identify their interests.

## IN PHASE

An annual E-magazine InPhase aims to achieve the vision of Cepstrum of bringing students in phase with the latest developments in the field of electronics and other related areas.



## WORKSHOPS

In order to expose students to the recent development in the industries workshops were organised

1. Intel Xeon-Phi Workshop
2. Samsung Galaxy Gear
3. Nvidia CUDA Programming
4. Compressive Sensing and Technical Writing

## IEEE STUDENT CHAPTER IIT GUWAHATI

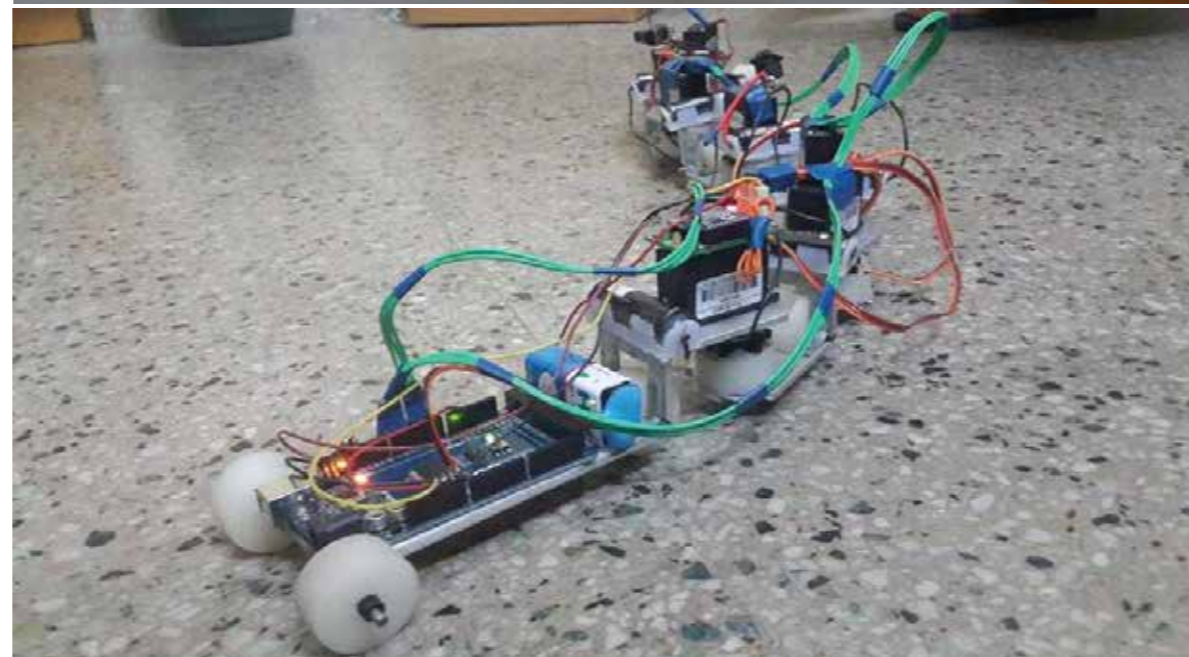
With the aim to promote cutting edge research and stay abreast with the happenings in the IEEE community worldwide, the student chapter plans to organise yearly lecture series, IEEE conferences and workshops on technical issues.





# Student Projects

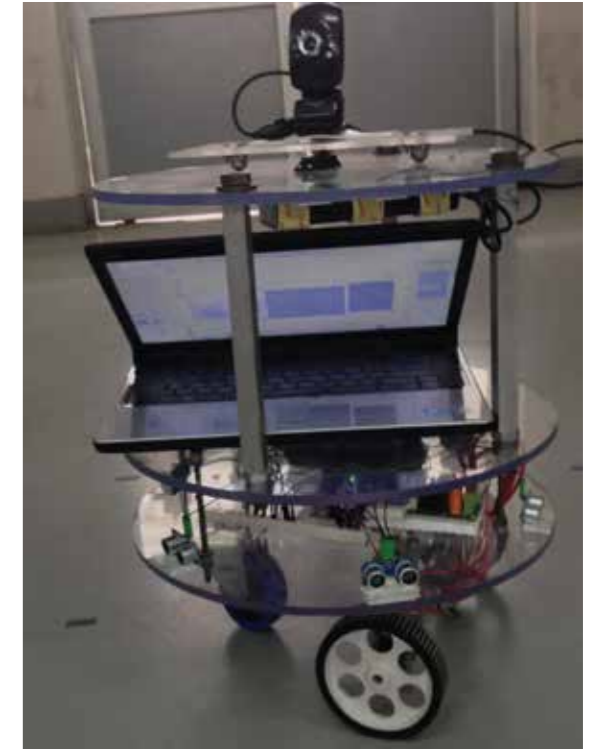
We here at IIT Guwahati aim to provide students a platform and resources to gain practical skills and realize projects. We believe in coming up with the projects that are innovative and are qualified enough to tackle real life problems.



**SNAKE ROBOT**



**TURTLE BOT**



**VOICE CONTROLLED ROBOT**



**QUADCOPTOR**



# Internships

Students pursue a summer internship of 10-12 weeks after their third year in corporate industries and academic institutions all around the globe where they apply the theoretical classroom gained knowledge into the real world. These internships provide the students with an immense amount of exposure making them ready to enter the professional world.

## ACADEMIC INSTITUTIONS

1. Carnegie Mellon University, USA
2. University of Southern California, USA
3. University of Toronto, Canada
4. University of Waterloo, Canada
5. ETH Zurich, Switzerland
6. Max Planck Institute, Germany
7. TU Berlin, Germany
8. Victoria University of Wellington, New Zealand
9. University of Western Australia
10. York University, Canada
11. Indian Institute of Science

## INDUSTRIAL INTERNSHIPS

1. Goldman Sachs
2. ITC Ltd
3. Qualcomm
4. Wipro
5. Altair Engineering
6. TCS Innovations Lab
7. CMC Ltd.
8. CoreEL Technologies Ltd.



# Past Recruiters



AMADEUS



AIRVANA NETWORKS



ALTAIR ENGINEERING



BANK OF AMERICA



BURNING GLASS



CAPILLARY TECH



CAPITAL IQ



CAPGEMINI



C-DOT



CMC LTD



DRDO



ERICSSON NETWORKS



EXL SERVICES



FICO



FUTURES FIRST



HP R&D



HIKE



IBM-GBS



# Past Recruiters



ITC



IRUNWAY



MORGAN STANLEY



MU-SIGMA



NAGARRO



NET CRACKER



NVIDIA



ORACLE-APPS



ORACLE-SERVER TECH



QUALCOMM



RGUKT



SAMSUNG



SCHLUMBERGER



TATA MOTORS



VIRTUSA



WIPRO

# Contacts

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<http://www.iitg.ac.in/eee/>

Placement Cell

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## STUDENT REPRESENTATIVES

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