



Indian Institute Of
Technology, Guwahati

Centre For Career Development

Department of
Mechanical
Engineering

Department Brochure



About the Institute

Since **1994**, when it was founded as the sixth Indian Institute of Technology, IIT Guwahati has become one of the world's most dynamic universities in technology, innovation, and research. The campus lies on a 285-hectare parcel of land on the northern bank of Brahmaputra 20km from the city centre. The curriculum and courses at IIT Guwahati are constantly changing to meet global needs and allow students to explore their interests.

The Institute offers **B.Tech, B.Des, MA, M.Des, M.Tech, MS(R), MBA, M.Sc, and Ph.D** programmes in 11 Departments, 9 Centres, and 5 Schools in all major engineering, science, and humanities areas. Our students can broaden their studies with a 'Minor' degree, open and interdepartmental electives, audit courses, and inter-disciplinary research.

The institute's state-of-the-art laboratories and **National Centres of Research** have made it a hub for research and technical education.

Apart from world-class research, the faculty prepares students for professional problems by teaching them their fields conceptually. It also helps students participate in worldwide projects, which helps them become pioneers and leaders.

IIT Guwahati has **MoUs (Memoranda of Understanding)** with top international institutes for semester-based student-exchange programmes and summer internships, boosting global integration and broadening our students' perspectives.

In their holidays, students intern in industrial, managerial, and research fields at top international corporations and research labs, contributing greatly. The institute provides excellent extracurricular opportunities to help students develop holistically.



About the Department

The department of mechanical engineering, being one of the largest and oldest departments of the institute, caters to its students with class tutorial and state-of-the-art laboratories. The department is continuously striving to achieve excellence in education, academic and industry oriented research as well as consultancy work with service to the society.

We aim to provide our students with a perfect blend of intellectual and practical experiences, that helps them to serve our society and address a variety of needs. At the end of our program, students are prepared for entry-level work as a mechanical engineer as well as for the post-graduate study in mechanical engineering or in another discipline, where a fundamental engineering background constitutes a desirable foundation, Academic course work and projects are designed to endow students with the ability to apply knowledge of science, mathematics, and engineering, and the capability to work effectively in multidisciplinary teams, providing leadership and technical expertise.

With a solid grounding in the principles and practice of mechanical engineering, our undergraduates are ready to engage in ethical approaches to engineering, with concern for society and the environment. Our program at the postgraduate level aligns academic course work with research, to prepare scholars in specialized areas within the field of mechanical engineering Research topics focus on Industrial needs.

The department aptly makes use of the technical facility of the workshop in teaching and in setting up of in-house experimental set-ups. Apart from carrying out practical classes as per academic curriculum, workshop caters to needs of different departments of the Institute in terms of executing works of their BLTech, M.Tech, and Ph.D. students as well as other related research/consultancy works. The department also welcomes students from other departments of the institute as a gesture of support to their time-to-time academic and research needs. Both undergraduates and postgraduates are well placed in leading industries as well as in the higher research level institutions of international recognition



Prof.K.S.R.Krishna
Murthy

Message from Head of the Department

Welcome to **Mechanical Department**, where exceptional talents meet endless opportunities for growth and success."

Formed in 1995, the mechanical engineering department is one of the largest and oldest departments of the institute. Till the 24th convocation, 1285 B.Tech. Students, 1262 M. Tech. Students and 226 Ph.D. students have graduated from the department. Since its inception, the department has consistently been recognized worldwide for excellence in research and academics. Over the years, the department has strengthened its research activities, introduced new MTech academic programs, and contributed to society by participating in consultancy work and numerous industrial projects. The department focuses on developing state-of-art computational and experimental facilities for teaching and research.

The department has also achieved a QS world university ranking by subject in the range of 201-250. The department is conducting its milestones at various stages of its growth by recruiting and retaining the best faculty members, upgrading the course curriculum to cater to the need of industry and research, developing and maintaining state-of-art laboratories, conducting various QIP, TEQIP, and training programs for the students and participants from outside, by conducting cutting- edge research for the country and the society, by introducing multiple inter-disciplinary courses for the students to make them ready for the industry, etc



Prof. Biranchi
Panda

Department
Faculty Advisor

The Mechanical Engineering department is at the forefront of producing academic and industrial leaders. The academic curriculum of this department is designed to build a solid foundation in various subjects of mechanical engineering including introduction to emerging and advanced technologies. Many of our students are doing extremely well in global companies and some have built their own start-ups in the area of Robotics, drone technologies. Overall, our students possess the necessary knowledge, skills and problem-solving abilities that enable them to take on engineering as well as strategic visionary roles in the industry. On behalf of the department, I welcome prospective recruiters to visit us and participate in the on-campus placement process at IIT Guwahati.

Undergraduate

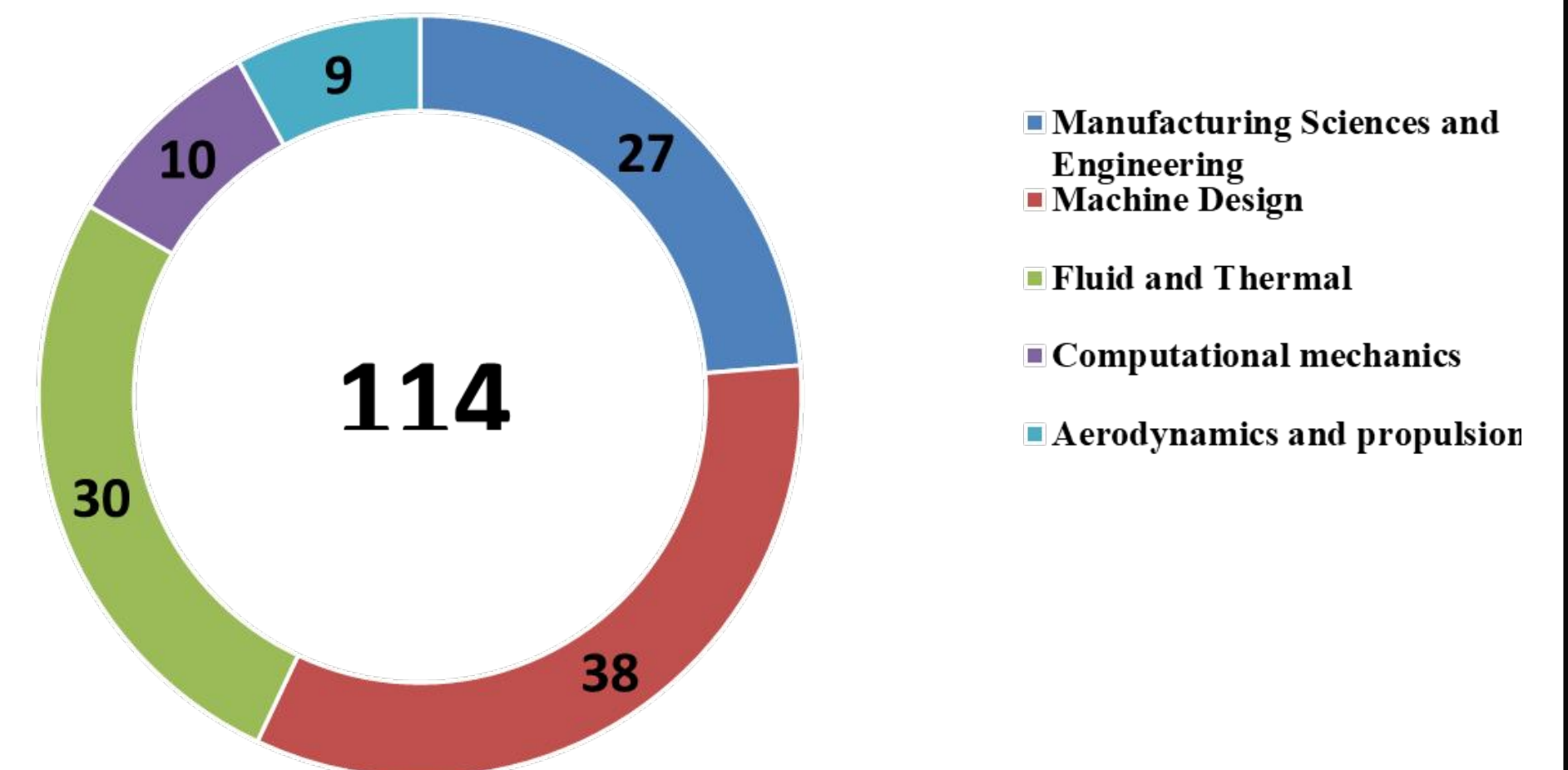
Bachelor of Technology (B.Tech.) degree in Mechanical Engineering follows an eight semester system. The curriculum is designed to impart fundamental principles as well as recent advancements in Mechanical Engineering. The current curriculum includes the SA courses, the HSS courses, and multiple Open Electives from different departments. Students are also mandated to work on their Bachelor Thesis Project for four semesters under the guidance of department faculties. The department also requires that students undergo Industrial Training for at least six weeks. There are 120 students in the graduating batch.

LINK: <https://www.litg.ac.in/sad/CourseStructure/Btech2018/ME.htm>

Postgraduate

Students who already have a bachelor's Degree and want to specialize in a field related to Mechanical Engineering may enrol in the two-year M.Tech. Program. In the final phase of M.Tech, the program's students complete advanced compulsory courses, electives, and a fourteen-month M.Tech. Project. The project is usually research and development focused and will be worked on individually. The curriculum is structured to expose students to real-world issues and their solutions. The Department offers five M.Tech. Specializations: Aerodynamics and Propulsion, Computational Mechanics, Fluids and Thermal Engineering, Machine Design and Manufacturing Science and Engineering.

LINK: <https://itg.ac.in/mech/academics/masters/>



PhD

The doctoral programme requires a minimum necessity of taking four course work in the first two semesters. After the completion of course work, the doctoral students have to appear for the Ph.D. comprehensive examination. The research scholar is further allowed to carry out his/her research work after successful completion of the Ph.D. comprehensive examination. The maximum duration for the doctoral programme is about five years. LINK: https://www.litg.ac.in/acad/academic_prog.php#Doctora

Mechanical Engineering (UG, PG & PHD)

KEY COURSES OFFERED

Fluids and Thermal

- Fluid Mechanics
- Thermodynamics
- Computational Fluid Dynamics
- Heat Transfer
- Refrigeration and Air Conditioning
- Aerodynamics
- Aircraft Propulsion
- Gas Dynamics
- Rocket Propulsion
- Conduction and Radiation
- Convective Heat Transfer
- Advanced Thermodynamics
- Microfluidics

Machine Design

- Advanced Solid Mechanics
- Mechanical Vibration
- Finite Element Methods in Engineering
- Continuum Mechanics
- Design of Machine Elements
- Kinematics of Machinery
- Dynamics of Machinery
- Fracture Mechanics
- Numerical Analysis
- Fracture, Fatigue and Failure Analysis
- Non-Linear FEM
- Non-Linear Vibrations
- Rotor Dynamics

Manufacturing

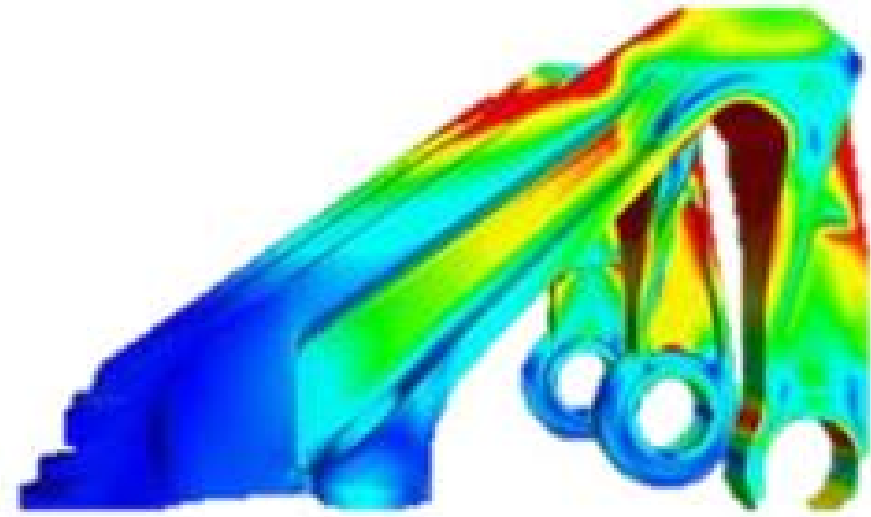
- Manufacturing Technology
- CAD-CAM
- Computer Integrated Manufacturing
- Composite Materials
- Engineering Materials and Characterization
- Advanced Manufacturing Processes
- Subtractive Manufacturing
- Welding and Additive Manufacturing
- Solidification Process
- Micromechanics of Materials
- Smart Materials
- Physics of Deformation

Interdisciplinary

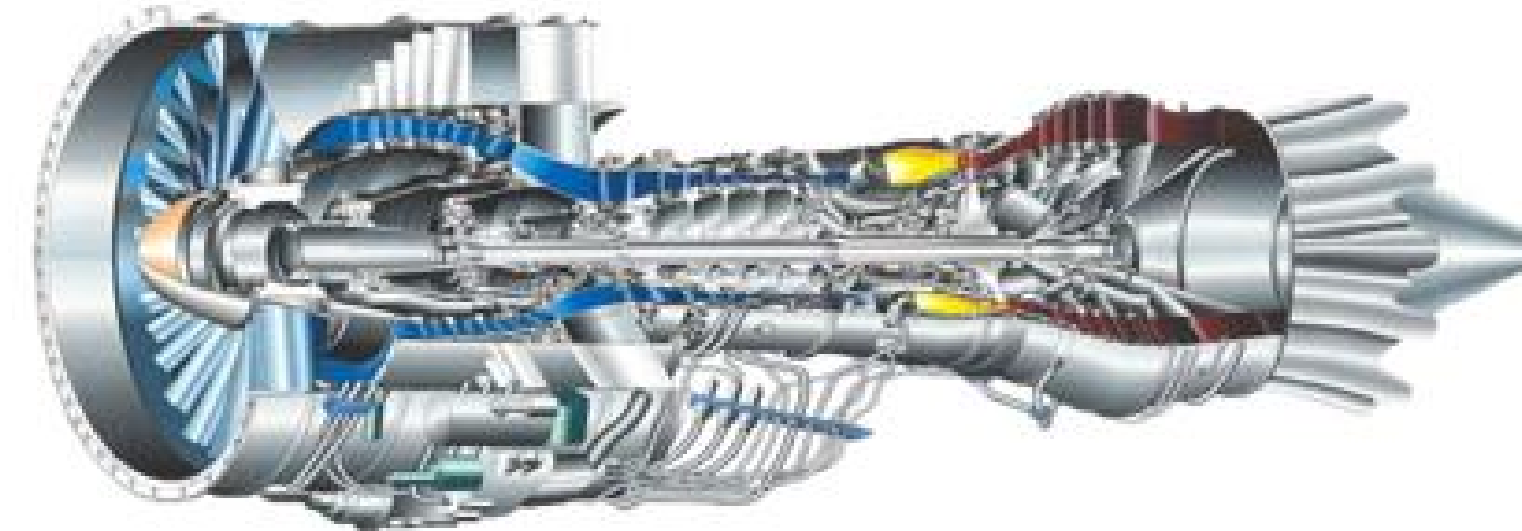
- Industrial Engineering and Operations Research
- Advanced Engineering Mathematics
- Machine Learning
- Soft Computing
- Optimization Methods
- Robotics and Computer Vision
- Modelling, Dynamics and Control of EVs
- Electrical Machines
- Signal Processing and Model Estimation
- Biomedical Devices and Systems
- Control Systems

and many more...

AREAS OF RESEARCH



COMPUTATIONAL MECHANICS



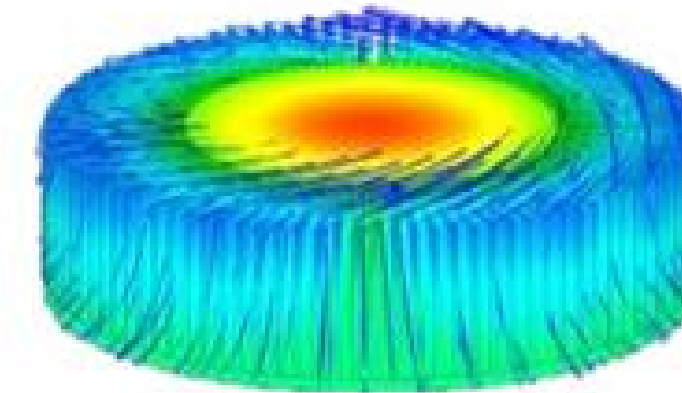
AERODYNAMICS AND PROPULSION



MANUFACTURING SCIENCES AND ENGINEERING



MACHINE DESIGN



FLUIDS AND THERMAL ENGINEERING



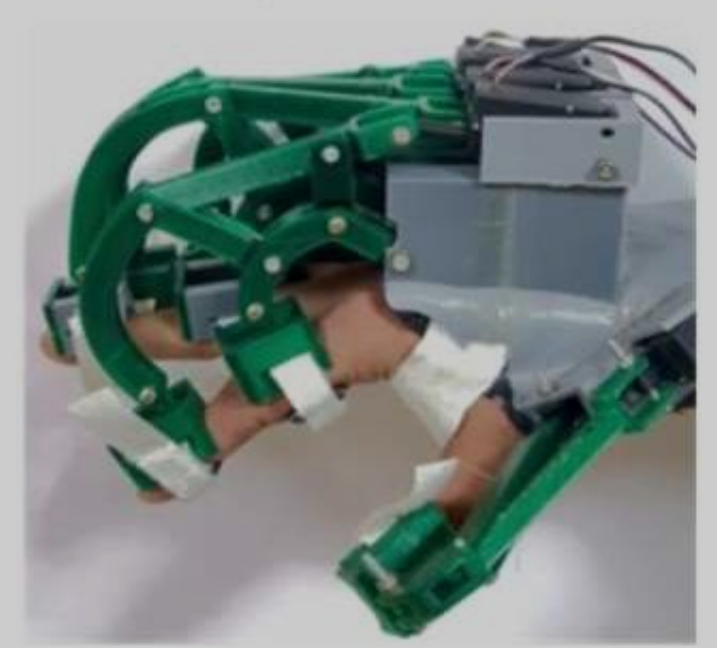
Advanced Manufacturing and Metrology Lab



CO2 Laser Cutting Machine



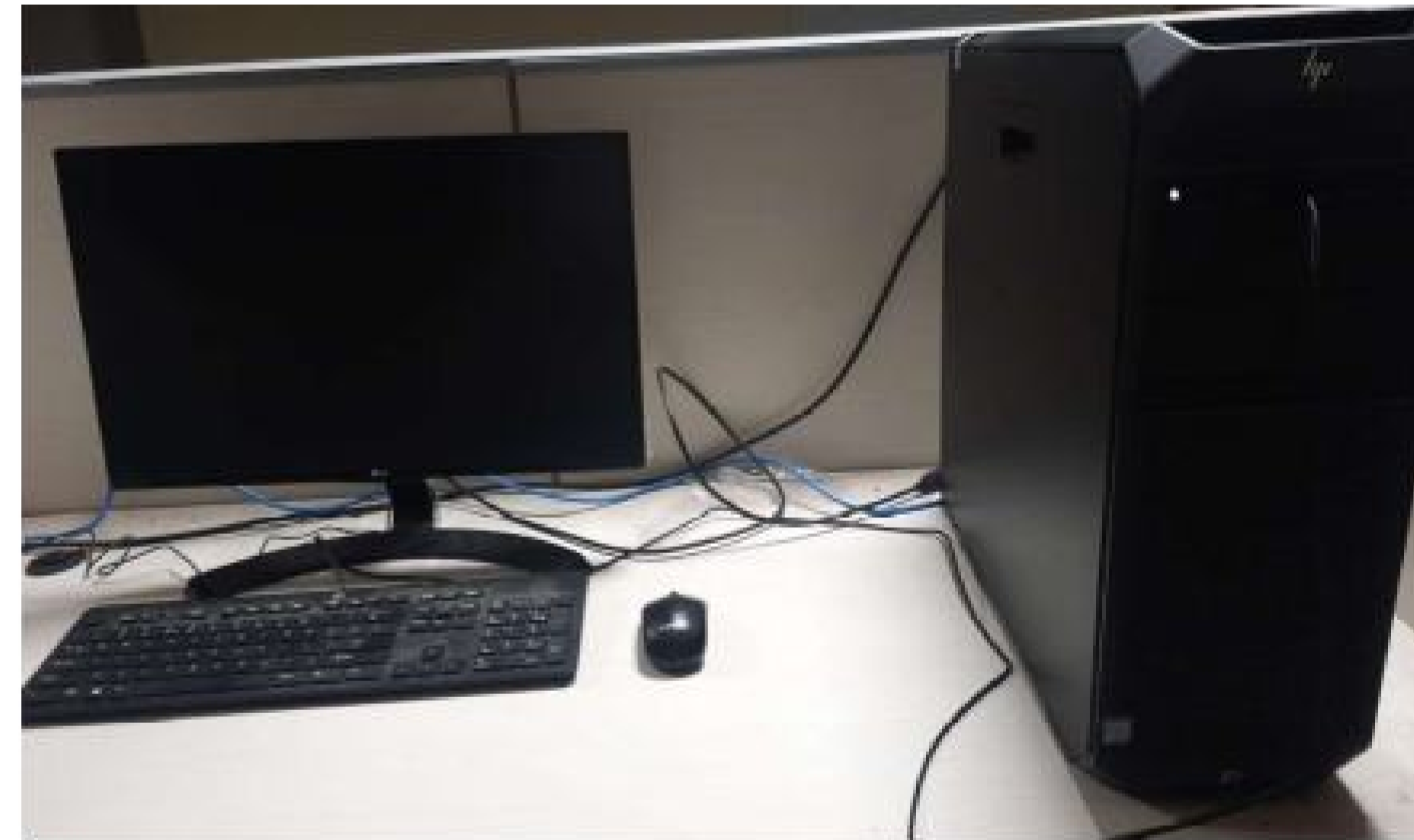
Electromyogram (EMG) Signal





Water tunnel lab

Many more....



A HP Z6 workstation used for CFD simulations and AI/ML in CFD applications



IMPACT OF OUR RESEARCH



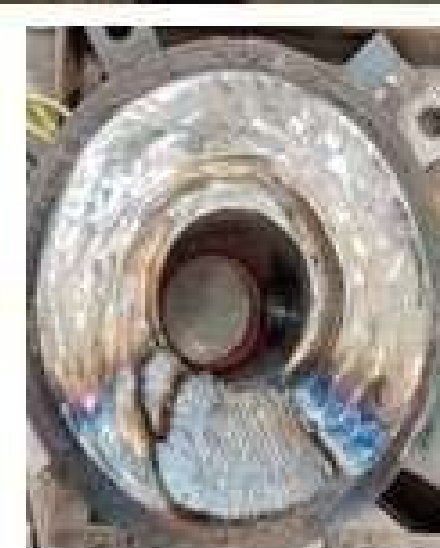
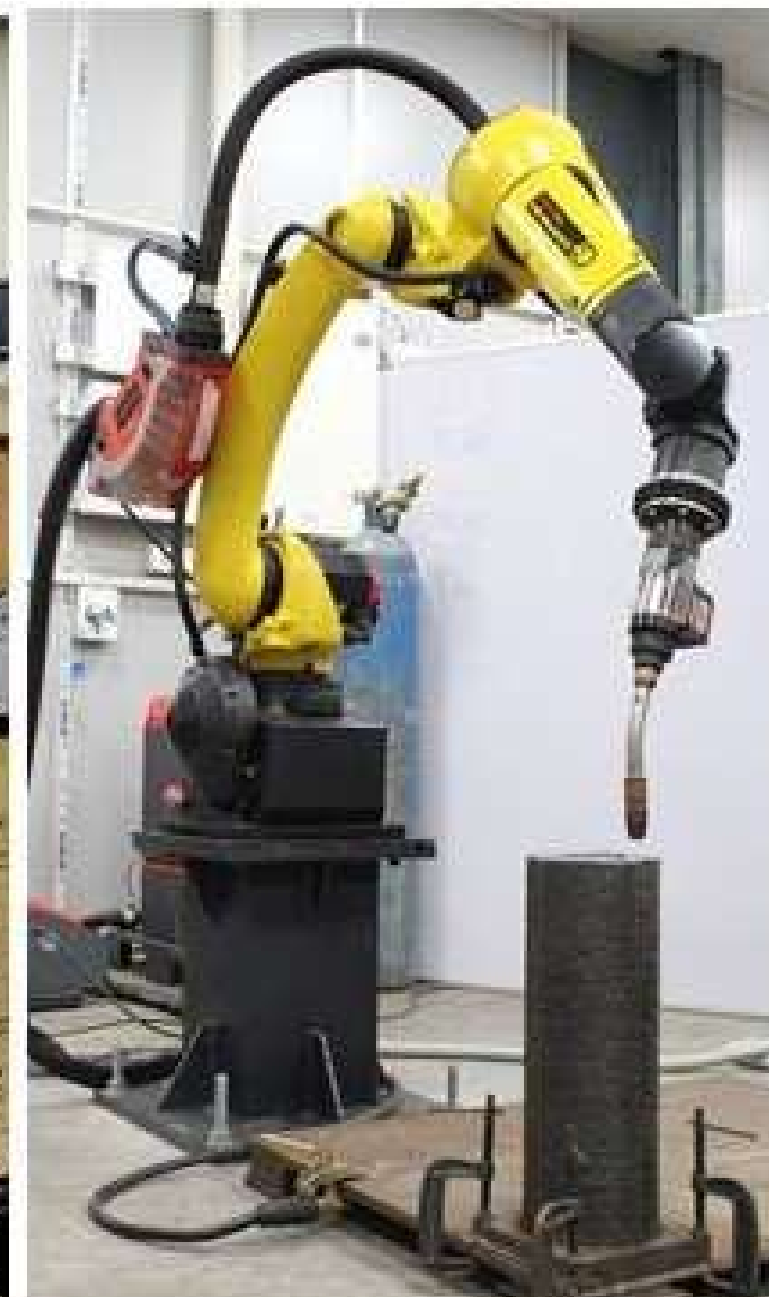
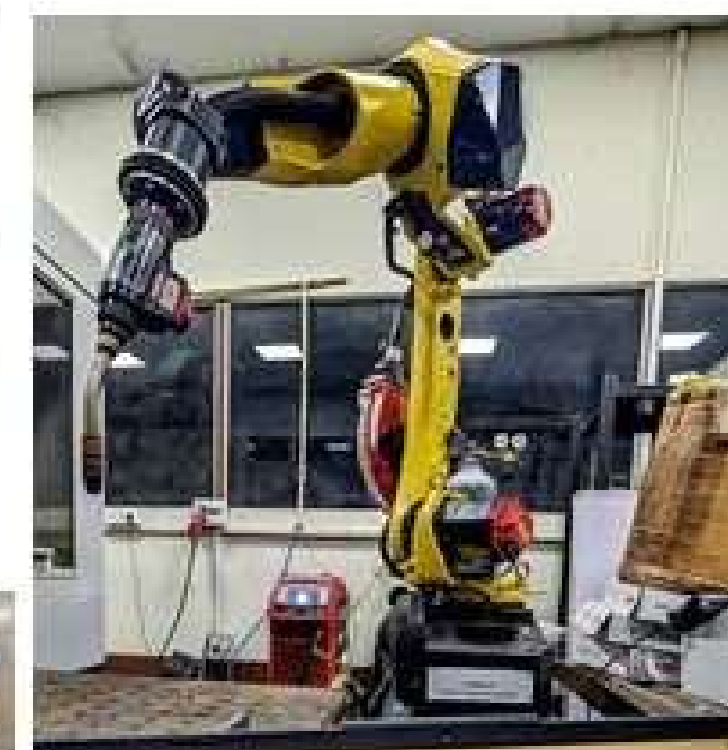
As a part of India's G20 initiatives, IIT Guwahati innovators have constructed a 3D-printed security post using a particular M40 grade sustainable concrete containing industrial wastes and fibers. [LINK](#)



Researchers of Mechanical Department, Indian Institute of technology, Guwahati have developed a Prosthetic Leg specifically designed for Indian conditions which is suitable for uneven terrain and supports Indian needs such as cross-legged sitting, and deep squatting. [LINK](#)



Indian Institute of Technology Guwahati research team led by Dr. Nelson Muthu, Assistant Professor, Department of Mechanical Engineering, has developed new modeling methods to assess the probability of failure of composite materials. They have used a combination of Machine Learning tools and state-of-art sampling techniques, to model and predict the failure and other properties of composite materials used in the aerospace and automobile sector. [LINK](#)



Student Clubs at IIT Guwahati

Automobile Club

- Represents IIT Guwahati in national-level SAE competitions (Formula Bharat, BALA, SUPRA, EFFI CYCLE).
- Students gain hands-on experience building Formula Bharat cars from scratch, designing and manufacturing various subsystems (powertrain, suspension, engines, thermal management).
- Currently developing their first Formula Student electric car, focusing on motor, motor controller, battery management, and low-voltage safety systems.



Aeromodelling Club

- The Aeromodelling Club is a diverse community of aviation enthusiasts united by their love for flight. The club activities include building and flying model airplanes, as well as designing and operating advanced drones.

Robotics Club

- The Robotics Club is inclined to strengthen the essence of real tech in the institute. It is a group of tech enthusiasts with a keen interest in Robotics and allied fields.
- Through the projects, the members get experience working with techniques like rapid prototyping, batteries, power management, manufacturing and fabrication of mechanical components, etc.



Placement Statistics for B.Tech and M.Tech for 2024

Department	Program	Discipline	No. of students placed	No. of students Registered	Percentage Placed (%)	Average CTC(INR)	Maximum CTC(INR)	Minimum CTC (INR)	Median CTC (INR)
Mechanical Engineering	B.Tech	Mechanical Engineering	91	109	83.5	20,00,000	74,74,000	7,50,000	17,00,000
	M.Tech	Aerodynamics and propulsion	7	8	87.5	11,20,000	15,00,000	7,50,000	11,00,000
		Computational mechanics	7	8	87.5	12,25,000	14,00,000	8,00,000	10,00,000
		Fluids and thermal	19	28	67.85	12,25,000	21,74,000	6,30,000	12,30,000
		Machine Design	19	24	79.2	12,00,000	21,74,000	6,75,000	11,00,000
		Manufacturing science and engineering	13	21	61.9	12,50,000	21,74,000	8,00,000	13,40,000
		M.Tech Total		65	89	73			

Past Recruiters



Mercedes-Benz



BOSCH

AIRBUS

Schlumberger

HONDA
The Power of Dreams

TVS 



Past Recruiters



Contact Us



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