



Indian Institute Of  
Technology, Guwahati

Centre For Career Development

Department of  
Civil 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

## Vision

To embark on an endeavor of knowledge through innovation in Civil Engineering education and research for sustainable development of the nation with special emphasis on the Northeastern region.

## Mission

- To create collegial, collaborative and stimulating environment for achieving academic excellence.
- To undertake inter-disciplinary research for sustainable development of the nation.
- To integrate research, innovation and technology in the learning domains of undergraduate and postgraduate education.

The academic program commenced in 1995 and is one of the oldest departments of the institute. The Department of Civil Engineering at IIT Guwahati was established in 1997 and has continually upgraded itself in terms of academic programs and research infrastructure, including state-of-the-art laboratories. The department attracts the finest young and 53 dynamic faculty members and the best of the students for its Bachelors, Masters and Doctoral programs. The Department is committed to providing excellent in-classroom infrastructure, enrichment of the academic and professional experience of students, outreach to the engineering community and society, and advancement in Civil Engineering.





Head of the Department  
**Professor  
Rajib Kumar  
Bhattacharjya**

## Professor Rajib Kumar Bhattacharjya

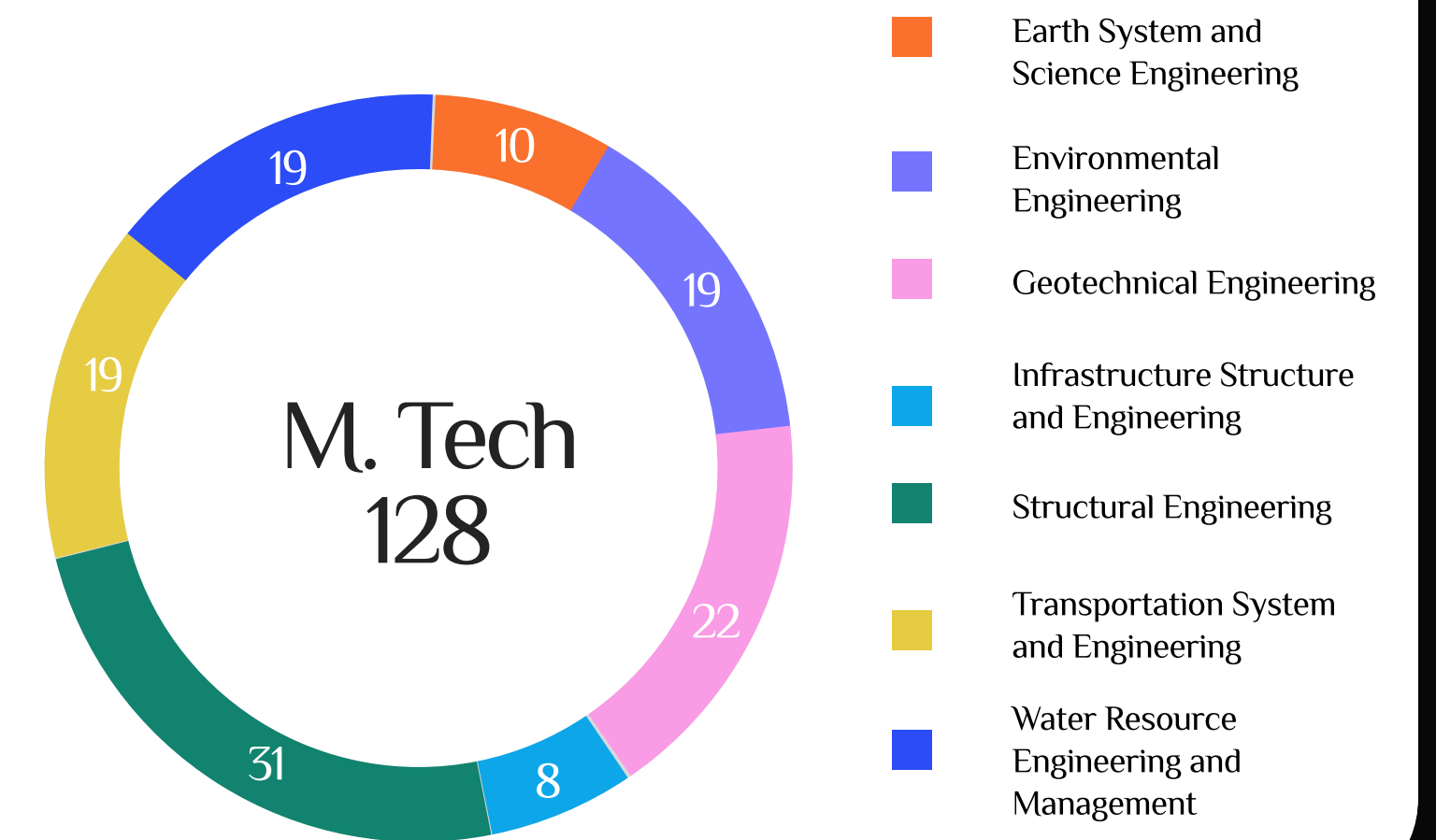
Department of Civil Engineering at IIT Guwahati was established in 1997 and has continually upgraded itself in terms of academic programs and research infrastructure including state-of-the-art laboratories. The department attracts the finest young and dynamic faculty members and the best of the students for its Bachelors, Masters and Doctoral programs. Students are exposed to well-defined academic programs along with a host of sports, cultural and organizational activities in a vibrant and beautiful campus of IIT Guwahati.

The presence of state-of-the-art experimental and computational facilities, active institute-industry interaction, national and international exchange programs and industrial/research training opportunities help the students in the department to excel in the competitive professional life.

Our graduates and postgraduates have been selected by leading national and multinational firms and research/academic institutes. The achievement of our students have really have made us proud! The department is committed to providing excellent in classroom infrastructure, enrichment of the academic and professional experience of students, outreach to the engineering community and society, and advancements in Civil Engineering. We would be happy to receive any valuable suggestions from your side. Feel free to contact us if you have any such questions or comments

## Masters of Technology in Civil Engineering

The M.Tech curriculum involves a rigorous four-semester program tailor-made to the area of specialization. The program follows a balanced approach of training in both qualitative/experimental and quantitative aspects of the respective field of specialization.. The students are also required to undertake teaching assistantships, thus grooming them into well-rounded individuals capable of completing challenging assignments. The Department offers degrees in seven different specializations: Earth System Science and Engineering, Environmental Engineering, Geotechnical Engineering, Infrastructure Engineering and Management, Structural Engineering, Transportation Systems Engineering, Water Resources Engineering and Management.



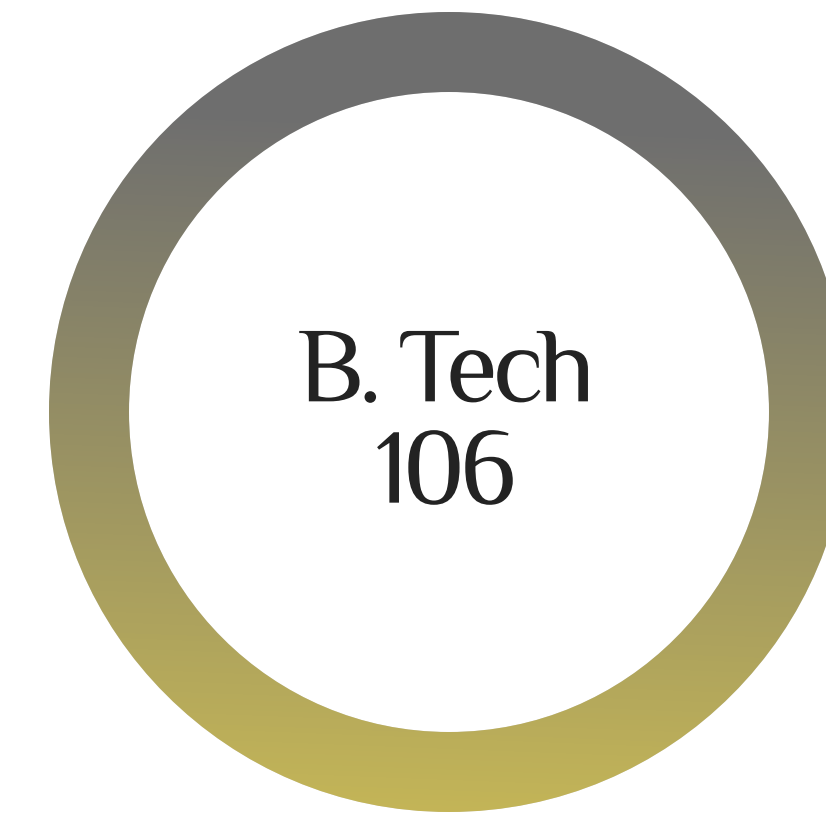
## Ph.D Programme

Our Ph.D. program, currently enrolling 200 students, is designed to facilitate comprehensive proficiency in the chosen field. This is accomplished through a structured curriculum comprising coursework and culminating in intensive doctoral research. Our students actively engage in both experimental and theoretical research across seven specialized areas within Civil Engineering



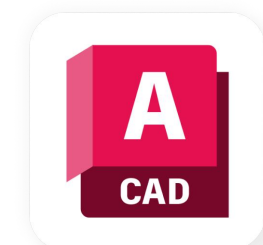
## Bachelors of Technology in Civil Engineering

Our B.Tech program in Civil Engineering offers a meticulously crafted curriculum that covers all major disciplines of civil engineering, including structural engineering, geotechnical engineering, transportation engineering, environmental engineering, to remote sensing. We provide our students with a well-rounded education that prepares them for diverse career paths within the field. The B.Tech curriculum involves an eight-semester program with the objective of providing a platform for the students to develop skills and knowledge in the field of Civil Engineering. Apart from that, the program also includes courses on humanities and social sciences and many electives. Our students gain hands-on experience and valuable skills by collaborating with industry leaders in the civil engineering sectors.



Total number of students in graduating batch

### Software



SAP2000

Office



Ansys

### Key Courses

- Solid Mechanics
- Civil Engineering Materials
- Fluid Mechanics
- Structural Analysis
- Surveying
- Geotechnical Engineering
- Environmental Engineering
- Hydraulics and Hydraulic Structures
- Reinforced Concrete Design
- Transportation Engineering
- Construction Technology and Management
- Engineering Geology
- Design of Steel Structures
- Engineering Hydrology
- Mathematical Concepts and Application in Civil Engineering
- Civil Engineering Materials Laboratory
- Fluid Mechanics Laboratory
- Engineering Geology Laboratory
- Surveying Laboratory
- Geotechnical Engineering Laboratory
- Environmental Engineering Laboratory
- Transportation Engineering Laboratory
- Traffic Engineering Laboratory
- Hydraulics and Hydraulic Structure Laboratory

# Earth System Science and Engineering

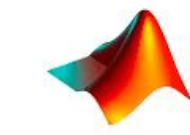
## Key Research Areas

- Remote Sensing and Advanced Image processing
- Applications of Geographic Information System(GIS) and Scientific computing for geospatial Analysis
- Photogrammetry, LIDAR and UAV Applications
- Petrophysical modeling for petroleum exploration
- Hydrocarbon exploration
- Rock Mechanics
- Geophysical Survey and Exploration
- Geodynamics and Natural Resources Management
- Sensor Calibration and Synthetic Simulation
- Isotope Hydrology

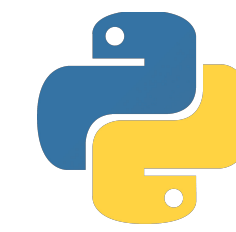
## Software



ENVI



MATLAB®



python™



ArcGIS

# Geotechnical Engineering

## Key Research Areas

- Shallow and deep Foundation
- Stability of slopes
- Unsaturated Soil Mechanics
- Ground improvement Techniques
- Seismic Hazard Analysis and Ground motion simulations
- Soil Stabilization
- Offshore Foundation
- Seismic soil-structure Interaction
- Vegetation soil Interaction
- Geoenvironmental Engineering

## Software



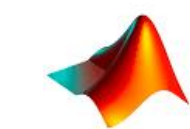
GeoStudio



PLAXIS®



rocscience



MATLAB®

# Infrastructure Engineering and Management

## Key Research Areas

- Sustainability in construction
- Cost of Quality
- Durability in concrete
- Geopolymer concrete
- BIM and construction automation
- Resource optimization
- Construction workers
- PPP projects
- Infrastructure Management

## Software

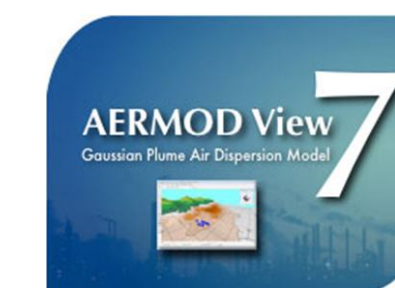


# Environmental Engineering

## Key Research Areas

- Wastewater treatment
- Solid waste management
- Biogas
- Pollution modeling
- Air quality modeling
- Sludge treatment
- Heavy metal removal and recovery
- Environmental impact, risk assessment & management

## Software





# Structural Engineering

## Key Research Areas

- Seismic control of a structure
- Earthquake engineering
- Continuum damage mechanics
- Seismic strengthening
- Wind-induced vibration and control
- Structural health monitoring
- Fracture mechanics
- Finite Element Analysis
- Durability of structures

## Software

**STAAD.Pro**

**SAP2000**

**ETABS**

**SIMULIA  
ABAQUS**

**Ansys**

**MATLAB**

# Water Resources and Engineering

## Key Research Areas

- IDF curve development
- River linking projects
- Rainfall clustering and zoning
- Sediment influx management
- Groundwater Quality
- Rainfall modeling
- River Hydraulics
- Hydrodynamic of alluvial channels
- Watershed and Irrigation management
- Dam-break analysis

## Software

**MATLAB**

**Ansys**



**python**

# Transportation Systems Engineering

## Key Research Areas

- Sustainable transportation planning
- Transportation demand management
- Traffic flow modeling
- Rigid and flexible pavement
- Performance testing and modeling of asphalt concrete
- Geometric design of transportation facilities
- Highway quality control and pavement material
- Accident Analysis and road safety
- Pavement analysis and design

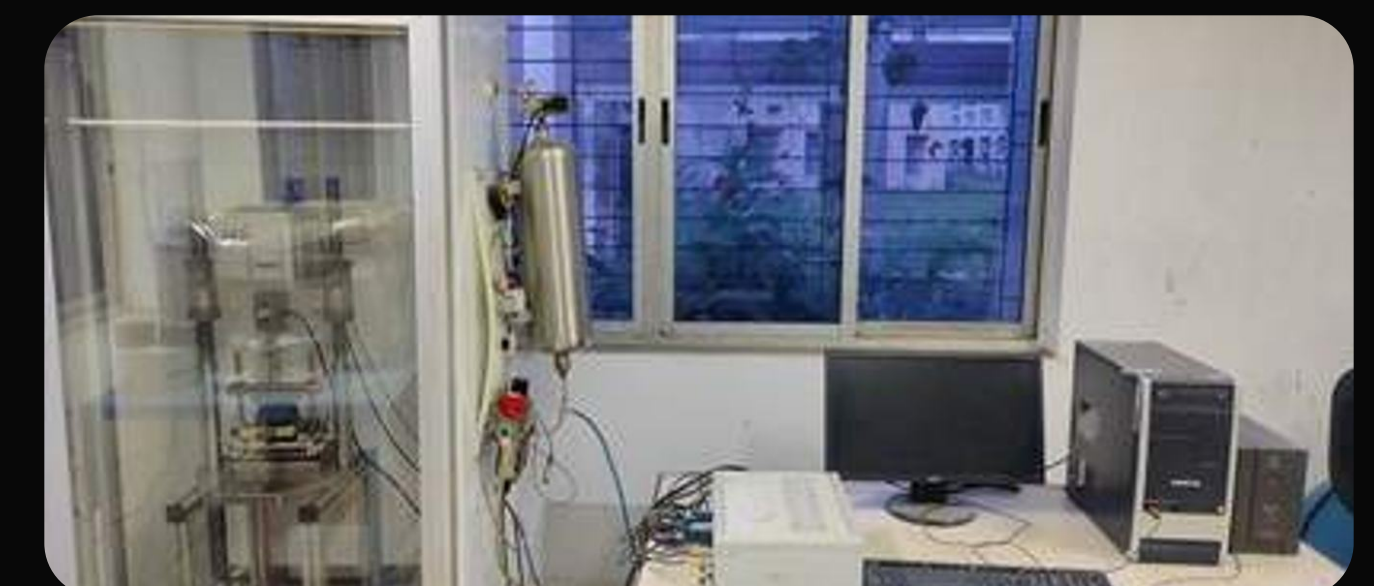
## Software



For more research on the information areas and laboratories, please visit [Here](#)

# Research Laboratories

- Concrete Laboratory
- Computational Laboratory
- Earth System Science and Engineering Laboratory
- Environmental Engineering Laboratory
- Fluid Mechanics Laboratory
- Geoinformatics Laboratory
- Geotechnical Engineering Laboratory
- Hydraulic Engineering Laboratory
- Infrastructure Engineering and Management Laboratory
- Pavement Evaluation Laboratory
- Structural Engineering Laboratory
- Transportation Systems Laboratory
- Water Resources Engineering Laboratory
- Water Quality Laboratory



# Sponsored Research Projects

	Project Name	Sponsoring Agency
1	Pre-opening Safety audit of Shillong Bypass Connecting NH-40 and NH-44	National Highways Authority of India
2	Resistance Characteristics of Alluvial Channel with Mobile Bed vegetation	Ministry of Earth Sciences, Government of India
3	Safer roads for Safer childhood	IFRC, Geneva, Switzerland
4	Cost Effective Retrofitting Solution for Open Ground Storey Apartment Buildings in Guwahati	Assam State Disaster Management Authority, Government of Assam.
5	Characterisation of sludge from secondary treatment plant of Nagaon Paper mill	HPCL, Kagaznagar
6	Suitability of water sample for construction purpose	M/S: NTPC
7	Road Surface Quality Assessment of Selected Border Roads Sections of India through Advanced Remote Sensing Technique	Defense Terrain Research Laboratory, DRDO, MoD, (Govt. of India)
8	Determination of the suitability of material as blanketing material	Northeast Frontier Railway
9	Research Promotion Scheme, Internet Infrastructure and Modernization of Laboratory Instrumentation projects in the AICTE affiliated institutions of Northeast India	AICTE India
10	Study of Glacial Dynamics and Sustainable Hydrological Resources in Arunachal Himalaya.	National Mission for Sustaining the Himalayan Ecosystem, Dept. of Science & Technology, Govt. of India
11	Evidence comparison between Tharsis, Hawaii island volcanism and Deccan Volcanic Provinces based on geomorphology and lithology	ISRO (Indian Space Research Organization)
12	Road Surface Quality Assessment of Selected Border Roads Sections of India Through Advanced Remote Sensing Technique	Defence Research and Development Organisation (DRDO), MoD, Govt. of India
13	Preparation of Feasibility Study Report on Measures for Flood Mitigation and Control of Riverbank Erosion/Shifting of River Course of Jia Bharali, Assam	Water Resources Department, Government of Assam

# Year at a Glance

## Achievements

- IIT Guwahati has achieved global recognition by securing the 32nd rank worldwide (3rd in India) in the 'Research Citations per Faculty' category of the esteemed QS World University Rankings 2022.
- The Department of Civil Engineering, IIT Guwahati feels proud in securing QS World Rank 151-200 for the year 2024 & 7th in India in the Engineering category as per NIRF Rankings 2024.
- Our Post Graduate Students from Civil Engineering have secured the prestigious DAAD Scholarship in Germany for the year 2023.
- Achieved 3rd place in the INTER IIT Civil Conclave 2022, held at IIT Roorkee.
- Several faculty members have been nominated and invited to join as External Academic Members of the PhD Board of Studies.
- Second prize in the Best Paper Presentation Competition category at the Indian Geotechnical Conference 2022 (IGC 2022).
- Winner of IITB-ISRO-AICTE Mapathon-2021 for the work entitled “Temporal changes in Majuli island due to Erosion and Sedimentation” .
- Best paper award in 8th IEEE CONECCT 2022 in Geoscience and Remote Sensing Technologies.



216

International  
Journals Research  
Papers Published



85

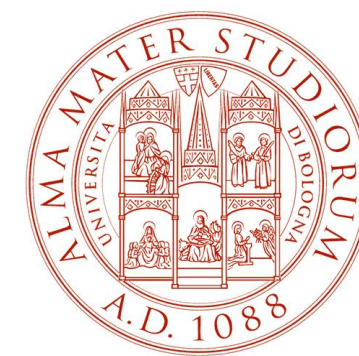
National and  
International  
Conference  
Research Papers  
Published

# Internship

Our students have undergone internships and training in industries and universities around the world. We believe in equipping our students with real-world experiences that prepare them for the challenges of the professional landscape. Through our extensive network of industry partners and esteemed universities, we offer unparalleled internship opportunities that expose our students to diverse cultures, cutting-edge technologies, and innovative practices.

## Project Collaborations:

- SP Singla constructions
- Engineering Consultants Group, Duba
- Gammon India Ltd, Guwahat
- RITES India Ltd, Kolkata
- Shapoorji Pallonji & Co Ltd
- Maritime Research Centre, Pune
- Central Mine Planning and Research Institute, Ranch
- Shree Cement
- National hydropower corporation at LSEEP, Assam



# Outreach Activities

- Prof.T.V Bharat joined the Editorial Board of Clays and Clay Minerals Journal as Associate Editor.
- Departmental talk was held as a part of Research and Industrial Conclave 2024 by Civil Department Faculty.
- Phd students won the Best Oral Presentation Award in RIC 24 ( source : V. Jahagirdar, A.K. Mishra, A.S. Kalamdhad “Unearthing Value from Municipal Solid Waste: A Deep Dive into the Fine Fraction Analysis from Landfill Mining in Guwahati, India” , Best Oral Presentation Award at Research & Industrial Conclave 2024, Indian Institute of Technology Guwahati, (9-11 August 2024).
- Association of Civil engineers (ACE) provides a platform to gain practical and analytical knowledge through workshops and competitions and be aware of recent development in Civil engineering.
- Talks are conducted under the theme INSPIRE that encourages and inspires the students of the department (especially the Freshers’ and sophomores) to get to understand and realize the scope and opportunities in Civil Engineering.



# Past Recruiters





# Past Recruiters

**SAMSUNG**



**IBM**



**Razorpay**



**BCG**



**Deloitte.**



**Infosys**



**amazon**



# Contact Us



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