DEPARTMENT OF
CIVIL ENGINEERING
Indian Institute of Technology Bombay

BROCHURE
2018-2019

VISION

To be the fountain-head of new ideas and innovations in Civil Engineering

MISSION

To offer world-class undergraduate and postgraduate education, research guidance, professional consultancy, outreach and manpower training as well as leadership in Civil Engineering.

GOALS

To be the highest-ranked Civil Engineering faculty in the country and among the best-rated departments in the world in terms of teaching and quality, research contributions, high-end consultancy, outreach and manpower training and academic leadership.

ABOUT US

The Department of Civil Engineering, one of the founding Departments of IIT Bombay established in 1958, over the years, has grown tremendously, and is now recognized and consistently ranked as one of the best and major engineering departments in the country and in the world, for civil engineering.

With its multifaceted faculty, the department focuses on research, development and consultancy across the disciplines of Transportation Systems Engineering, Geotechnical Engineering, Water Resources Engineering, Structural Engineering, Ocean Engineering, Remote Sensing, and Construction Technology and Management, besides emphasis on high quality teaching and instruction at undergraduate and postgraduate levels. The Department disseminates the knowledge gained from its high quality research through training programs and interacts with world renowned personalities through workshops and conferences.

The Department has attracted significant amount of sponsored research funding from government and private agencies and delivered excellent output in terms of implementable solutions. By providing high quality technical advisory support through various R&D projects, the department maintains strong contacts with various public and private corporations across the world.

57th
QS World Department Rank 2019

3rd
NIRF Insitution Rank 2018

1st
The Week Department Rank 2018

ACADEMICS

The Department of Civil Engineering, IIT Bombay offers the following degrees:

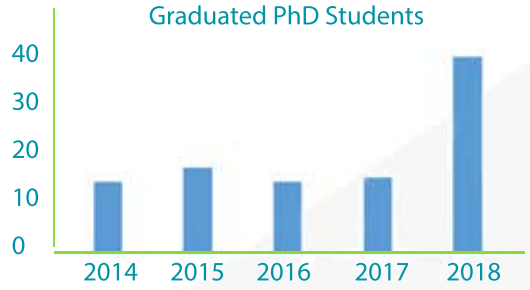
- B. Tech. (4 Years) - yearly Intake: 120
- M. Tech. (2 Years) - yearly Intake: 75
- Ph.D.
- Dual Degree (B. Tech.+ M. Tech.) (5 Years)
- Dual Degree (B.Tech. + Ph.D.)

The department also admits fresh PhD degree holders as Post doctorate fellow across respective disciplines.

Students enrolled to the B.Tech. programme can also pursue a B.Tech. (Honours) degree in Civil Engineering. A B.Tech. student can apply for a transition to the Dual Degree programme by the 3rd year of study.

The postgraduate programmes are offered in the following specialisations:

- Transportation Systems Engineering
- Geotechnical Engineering
- Water Resources Engineering
- Structural Engineering
- Ocean Engineering
- Remote Sensing
- Construction Technology and Management



The department currently enrolls 274 research scholars along with 145 postgraduate students in the above specilizations.

Entry to the M.Tech. programme is typically through the Graduate Aptitude Test in Engineering (GATE). For further details on the admission to M.Tech. and Ph.D. programmes, please refer to the IIT Bombay Academic Office website: http://www.iitb.ac.in/acad/

PLACEMENTS

Excellent placement opportunities exist for graduated students. Most students secure a placement (in government, public and private sector, both within the country and outside) prior to completing their studies.

Our students have been placed primarily in the construction and infrastructure industry, including design consultancy (both national and multi-national corporations). The employers include Larsen & Toubro, Dar Al Handasah, Thornton Thomasetti, Walter P. Moore, Leslie E Robertson Associates, Mahindra EPC, etc. Our bachelor students also go on to pursue a career in research and academics. Some enthusiastic students with entrepreneurship skills launch their own start-up companies after graduating from this department.

Most of the B.Tech. students opt for an internship at the end of their 2nd/3rd year of study (in educational/research institutes or in the industry) which helps them choosing their career path after graduation.

Prospective recruiters may obtain additional details from the website of the Placement Cell of IIT Bombay: http://placements.iitb.ac.in

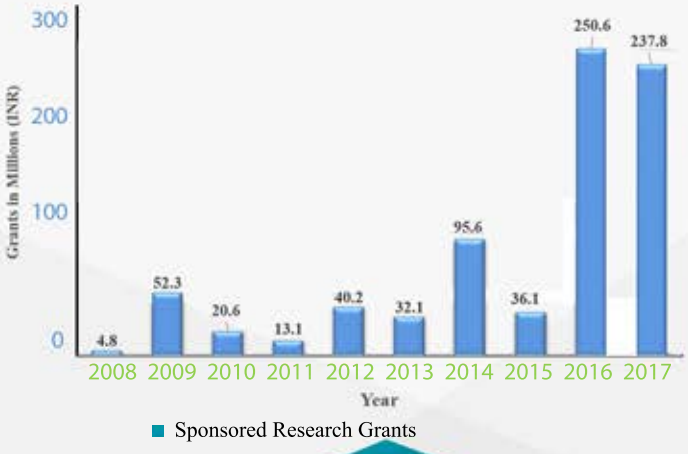
RESEARCH & DEVELOPMENT

We are actively involved in basic and applied research sponsored by public and private organisations, such as, DST, DAE , DEIT, Ministry of Earth Sciences, MHRD (all Govt. of India divisions), ISRO, CSIR, CRRI, CDAC, NIOT, FICCI, FP7 (EU), UKIERI (UK), NSF (USA), SNSF (Switzerland), ArcelorMittal (Belgium), etc.

Apart from this, DST - FIST has sanctioned to the department a total financial grant of INR 51 million (2014 - 2019) under the theme "Sustainable Materials and Technologies in Civil Engineering Applications" for the procurement of Rheometer, Large Multi - purpose Flume, Cyclic Triaxial Facility, Gyratory Compactor, and Hamburg Wheel Tracker Rut Machine.

The department boasts excellent research facilities in various disciplines, including the National Geotechnical Centrifuge Facility. Our laboratories focus on key thematic research areas, and are equipped with state-of-the-art technological facilities.

Our research outcome, in terms of publishing research papers, monographs, technical reports, etc., is one of the best among all engineering departments in the country, keeping the department at a very high level in academic rankings consistently. The average number of journal papers published is 4 per faculty member per year (besides similar number of papers in conferences). Our faculty members are editors and editorial board members of many reputed national and international research journals. Ph.D. students form the core group of research students. Our M.Tech. students also pursue a research based dissertation.



Number of Patents filed : 19

LABORATARY FACILITIES

The department provides state of the art laboratary facilities that help in carrying out high quality research work. These include

- Heavy Structures
- Experimental Mechanics
- Structural Evaluation & Materials Tech.
- Hydraulics
- Fluid Mechanics
- Water Quality
- Advance & Dynamic Soil Testing
- National Geotechnical Centrifuge
- Applied Soil Mechanics
- Geotechnical Earthquake Engineering
- Geosynthetics Research and Testing
- Environmental Geotechnology
- Advanced Pavement Engineering
- Highway Material Testing
- Transportation Studio
- Traffic Engineering
- Remote Sensing and GIS
- Photogrammetry
- High Definition Survey Geodesy
- Ocean Engineering Lab
- Computational Lab
- Thematic Labs

INDUSTRIAL CONSULTANCY

Apart from sponsored research, the department maintains a very active association with the industry through consultancy projects, providing solutions to real-life engineering problems.

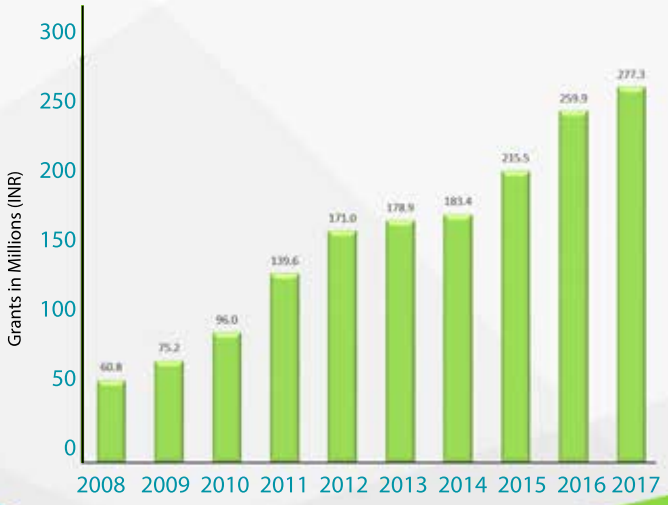
Our expert advice is sought for planning, design, construction, testing, performance assessment, maintenance, repair, rehabilitation, recycling, etc., in the building construction and infrastructure industry. However, our industrial consultancy is not limited only to this domain.

Clients for our consultancy projects include public and private sector organisations from India and abroad, for example Ministry of Defence, Indian Railways, NPCIL, ONGC, MCGM, CIDCO, MSRDC, MMRDA, JNPT, CS International Airport, OECD, Petrofac (UAE), etc.

Geotechnical design of Chatrapati Shivaji Maharaj Intl. Airport, Mumbai was carried out by the department

The department was associated with structural analysis of the Bandra- Worli sealink

Further information on our expertise and on consultancy projects in general are available in the webpages of the Industrial Research and Consultancy Centre, IIT Bombay: http://www.ircc.iitb.ac.in



PEOPLE

FACULTY

Transportation Systems Engineering

K V Krishna Rao: Sustainable Urban Transportation Planning; Land Use Transport Modelling

Tom V Mathew: Traffic flow modelling and simulation; Transportation Network Optimization

Gopal R Patil: Transportation systems planning; Network optimisation

Perumal Vedagiri: Traffic flow modelling and simulation; Road safety

Nagendra R Velaga: Intelligent transportation systems; GIS and GNSS applications in transport

Avijit Maji: Innovative intersection and interchange design; Geometric design

Dharamveer Singh: Characterisation of pavement materials; Design and analysis of pavements

Geotechnical Engineering

D N Singh: Geoenvironmental engineering; Bio-geo interface

B S Viswanadham: Centrifugemodelling; Environmental Geotechnics

Deepankar Choudhury: Soil Dynamics; Foundation Engineering

Ashish Juneja: Numerical and physical modelling in geotechnics; Earthwork

J N Mandal: Design and construction with geosynthetics; Geo-synthetic Testing

Dasaka S Murty: Earthpressure reduction techniques; Deep Excavation Supporting Systems

Prasenjit Basu: Energy geotechnics; Engineering of foundations

Santiram Chatterjee: Offshore geotechnical engineering; Numerical Modelling

Water Resources

Kapil Gupta: Urban water management; Sedimentation

T I Eldho: Computational fluid dynamics; Groundwater hydrology

V Jothiprakash: Water resources systems analysis; Stochastic hydrological modelling

Janga Reddy Manne: Irrigation water management; Surface water hydrology

Subimal Ghosh: Hydro-climatology; Indian monsoon;

Arpita Mondal: Detection and attribution of hydrologic change; Urban Flooding

Riddhi Singh: Rainfall Runoff Modelling; Model Diagnostics

Basudev Biswal: Hydrology; Prediction in ungauged basins

Structural Engineering

Pradipta Banerji: Earthquake engineering; Damage Detection

Alok Goyal: Earthquake engineering; Reinforced and prestressed concrete structures

Ravi Sinha: Energy-absorbing And Base-isolating Devices; Dynamic Behaviour

Yogesh M Desai: Computational mechanics; Composite mechanics

R S Jangid: Non-linear Dynamic Analysis; Active Control Of Structures

Kamal M Bajoria: Steel structures; Nonlinear Structures

Naresh K Chandiramani: Nonlinear dynamics; Stability and control

Siddhartha Ghosh: Structural reliability; Risk analysis

Sauvik Banerjee: Structural health monitoring; Wave propagation

Mandar M Inamdar: Shell structures; Cellular mechanics

Swagata Basu: Earthquake engineering; Structural resilience

Amit K Das: Computational mechanics; Plates and shells

Arghadeep Laskar: Reinforced and prestressed concrete; Concrete structures

Jayadipta Ghosh: Seismic fragility assessment; Structural reliability

Meera Raghunandan: Earthquake engineering; Probabilistic seismic risk analysis

Manish Kumar: Earthquake engineering; Seismic isolation

Ocean Engineering

M C Deo: Wave hydrodynamics; Ocean Structures

Balaji Ramakrishnan: Coastal engineering; Tidal hydrodynamics

Manasa R Behera: Computational ocean and coastal dynamics; Coastal flood modelling and management

Remote Sensing

RAAJ Ramsankaran: Remote sensing and GIS for hydrology and water resources; Urban studies

Indu J: Microwave remote sensing; Uncertainty In Radar based Rainfall

Eswar Rajasekaran: Thermal Remote Sensing; RS Applications In Hydrology

Construction Technology and Management

Prakash Nanthagopalan: Concrete technology; Building materials

Venkata S K Delhi: Infrastructure project governance; Construction project management

Muhammad Salman: Construction materials; Concrete technology

Albert Thomas: Sustainable Construction Management Practices; Lean Construction

Adjunct/ Visiting Professors

E P Rao
K. Dave
B Shivkumar
B Muzumder
M. Wankhede

STAFF

Achrekar P, Jr. Mehanic
Adane G, Jr. Mechanic
Bahadur P P, Helper Gr. I
Bastav S M, Jr. Attendant
Channe P, Project Engineer
Dhanve V B, Administrative Assistant
Gurkhe S, Jr. Mechanic
Gurudatt N, Jr. Mechanic
Khan N,Sr. Technical Superintendent
Manere V, Jr. Mechanic
Mohammed A, Jr. Technical Superintendent
Palsanai M K,Jr. Mechanic
Patil S, Jr. Technical Superintendent
Rane H D, Sr. Technical Superintendent
Sawant N, Technician
Shinde M T, Sr. Attendant
Shingade P, Jr. Technical Superintendent
Shivsharan S Y, Administrative Officer
Simpi S, Jr. Mechanic
Thakur P, Jr. Technical Superintendent
Varghese V M, System Administrator
Warghade N H, Jr. Attendant
Warik E S, Jr. Assistant

OUTREACH

The department organises a host of activities to disseminate knowledge among stakeholders. In the 2017-2018 academic year alone, 10 QIP programs and 10 CEP courses have been organized by the department. Also we engage with engineering professionals and college teachers through diverse outreach activities, such as

- Short-Term Training Programmes (STTP) and in-house courses under our Continuing Education Programme (CEP)
- Web and video courses under distance education programmes
- Doctoral and masters studies under the Quality Improvement Programme (QIP)
- Part-time Ph.D. degree in the College Teacher (CT) category
- Self-sponsored (part-time) Ph.D. degrees for the working professional

The department regularly organises national and international conferences, thematic workshops and symposia. Besides, we host distinguished researchers from across the world as visiting professor, who share their expertise through research collaboration and teaching.

The department pursues international collaborations:

Through Joint supervision of Doctoral students

- Monash University
- University of Illinois at Urbana-Champaign
- Drexel University
- HK Polytechnic
- University of New South Wales
- North-Eastern University
- The University of Sheffield
- Univ. of Edinburgh.

Through Sponsored projects

- University of New South Wales
- Monash University
- Purdue University
- KIT, Germany (under DAAD)
- University of Padua (UNIPD)

Exchanges Visits and Fellowship

- University of California, Berkeley
- NUS
- Tokyo Institute of Technology

STUDENT ACTIVITIES

The **Civil Engineering Association** (**CEA**), IIT Bombay is one of the most active organizations of civil engineers in the country. The Association was established with a prime objective to proliferate knowledge and address industrial issues by bringing corporate, professors and students on to a common platform. CEA regularly organizes activities like technical seminars, research symposium, and talks on cutting edge academic research as well as innovations in industries. The association also organizes multiple site visits every year for the students, thus giving the chance to interact with key figures in the industry.

Through CEA,the department also encourages various student activities, such as group treks, fresher's welcome function, and sports weekends, and traditional days. The association is also responsible for publication of the annual magazine YELLOW, an informal newsletter -BLUEPRINT, a technical research letter - INQUEST and SENTIENCE - for high lighting the latest civil engineering innovations. CEA organizes Aakaar, the annual festival of Civil Engineering Department, IIT Bombay. Aakaar provides a platform to budding civil engineers across the country to create,innovate and learn various aspects of civil engineering through competitions, events and symposium (research paper conference). Aakaar has gone onto become the undisputed front-runner among civil engineering festivals.

The department also encourages activities like seminars and workshops to cater the academic needs of the students throughout the year which are organised by the department placement team, academic council and the student companions. Apart from these, we encourage students to participate in national and international level competitions such as Solar Decathlon, National Canoe Competition, Tower of Babylon etc.

CONTACT
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