

# Indian Institute of Technology Patna



## Dept. of Civil & Environmental Engineering

### PLACEMENT BROCHURE

**M. Tech, Civil Engineering (2020-22)**



## Message From HoD



**Dr. Ramakrishna Bag**

Head, Department of Civil and Environmental Engineering  
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We are a part of modern and growing IIT founded in 2008. Initially the department used to provide M. Tech degree in Civil & Infrastructure Engineering that has been changed to Civil Engineering recently. The Department of Civil and Environmental Engineering (DCEE) at IIT Patna has continually upgraded itself in terms of academic programs and all research infrastructure including state of the art laboratories.

The post-graduate syllabus of the Department and its research activities are focused on five specialized areas of Civil Engineering such as Structural, Geotechnical, Transportation, Water resources and Environmental Engineering. Apart from core courses, our curriculum provides flexibility to students to choose elective courses of interdisciplinary nature. Students are encouraged to work for their project or dissertation on topics of industrial and societal needs. The presence of state-of-the-art experimental and computational facilities, active industry-academia interaction, rigorous training both inside the classrooms and laboratories as well as through immersive industrial/research internships prepare the students of the Department with their innate quality to meet more than adequately any challenge in their competitive professional life and also take on leadership roles in later years in their career.

I heartily welcome both the recruiters and our post-graduate students to come to a common platform and get the best out of each other. I am quite sure that students of our department will prove themselves competent enough to meet the challenges of modern technical world and the society. I wish them all the best for their future.

# Faculty Members



**Dr. Amarnath Hegde**  
(Geotechnical)



**Dr. Arvind Kumar Jha**  
(Geotechnical)



**Dr. Avik Samanta**  
(Structural)



**Dr. Bachu Anilkumar**  
(Transportation)



**Dr. Koushik Roy**  
(Structural)



**Dr. Om Prakash**  
(Water Resources)



**Dr. Pradipta  
Chakrabortty**  
(Geotechnical)



**Dr. Ramakrishna Bag**  
(Geotechnical)



**Dr. Sourav Gur**  
(Structural)



**Dr. Subrata Hait**  
(Environmental)



**Dr. Sudhir Varma**  
(Transportation)



**Dr. Syed K. K. Hussaini**  
(Transportation)



**Dr. Trishikhi  
Raychoudhury**  
(Environmental)



**Dr. Vaibhav Singhal**  
(Structural)



**Dr. Vishal Deshpande**  
(Water Resources)

# About us

Keeping in mind the infrastructure requirements for improved quality of life in a growing society as well as for industry and economic development, the need of the hour is to focus on Civil Engineering with interdisciplinary approach.

In order to satisfy the current societal needs and growing industry demands, the M. Tech in Civil Engineering program started in 2014 under the aegis of Department of Civil and Environmental Engineering at Indian Institute of Technology Patna intends to be at the forefront of imparting engineering education by amalgamating traditional Civil Engineering with modern techniques.

The program is designed to provide in-depth knowledge in the fundamentals, design, analysis and implementation of solutions for modern-days Civil Infrastructure problems. Moreover, the program intends to emphasize application-oriented and thesis/project-based learning.

## Current Batch strength

B. Tech - 166  
M. Tech - 29  
Ph. D. - 53

## Total no. Of Ph. D. awarded

# Courses Offered

## Core Courses

- Advanced Engineering Mathematics
- Civil Engineering Design I&II
- Finite Element Methods
- Technical Communication
- Civil Engineering Lab I&II

## Elective Courses

- Advanced Structural Analysis
- Structural Dynamics
- Advanced Foundation Engineering
- Pavement Materials
- Fundamentals of Soil Behaviour
- Traffic Engineering and Highway Safety
- Industrial Pollution Control and Prevention
- Railway Engineering
- Open Channel Hydraulics
- Geotechnical Earthquake Engineering
- Econometrics
- Time Series Analysis
- Earthquake-Resistant Design of Structure
- Groundwater Hydrology
- Advanced Flexible Pavement Analysis and Design
- Geoenvironmental Engineering
- Air Pollution and Control
- Soil Exploration
- Highway Geometric Design
- Ground Improvement Techniques & Reinforced Earth
- Site Remediation

# Student's Project List

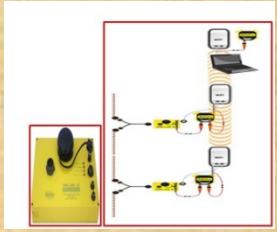
- Analyzing driver behavior under naturalistic driving conditions
- Mechanically stabilized Earth Retaining Walls
- Ground Water Surface Water Interactions
- Geothermal Energy (Energy Piles)
- Use of Shape Memory Alloy (SMA) in Shear Link Damper
- Evaluation of FWD IRC115
- Protection of buried pipeline using EPS Geofoam
- Seismic response of adjacent building structure connected with super-elastic damper: comparison with yield damper
- Land feasibility analysis using geo spatial tools for water harvesting planning
- Travel Time Reliability Analysis of Public Transit Buses using GPS Data
- Volume change behavior and hydraulic conductivity of sand- and slag-bentonite mixes modified using Nano-clay particles
- Prediction of Dynamic responses of MSE wall using artificial neural modelling

# Research Labs

## Structural Engineering & Concrete Technology Lab

		
Reaction Frame	Seismic Accelerometer and Data Acquisition System (large scale)	Base Shaker
		
Experimental setup to find bending moment in portal frame	Universal Testing Machine	Ultrasonic Concrete Testing Machine
		
Seismic Accelerometer and Data Acquisition System (small scale)	Experimental setup of continuous and indeterminate beam	Rebound Hammer

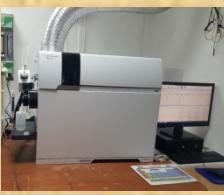
## Geotechnical Engineering Laboratory

		
Mercury Intrusion Porosimetry (MIP)	Temperature controlled oedometer (In-house developed)	Electrical Resistivity Meter
		
Cyclic Plate Load Test	Fredlund SWCC Device	Water potential measurement apparatus
		
Automatic compactor	Pile Integrity Test Apparatus	MASW Test Apparatus

## Transportation & Railway Engineering Laboratory

		
Bitumen Extractor	Trazer suite	5 C Signal Conditioner
		
Stabinger Visco. 3000	DMS Apparatus	AB Penetrometer
		
Automatic compactor	P.I Test Apparatus	LWD 6000 BLE
		
Large-scale direct shear apparatus	Large-scale pullout apparatus	Rail Track Testing Facility
		
LSRB Permeability Apparatus	Deval Abrasion Test	Ductility Test Apparatus

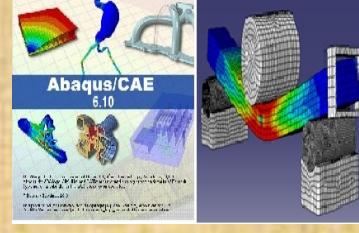
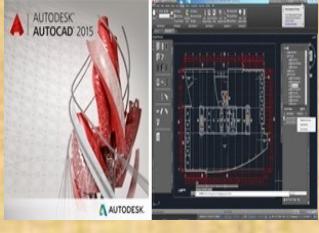
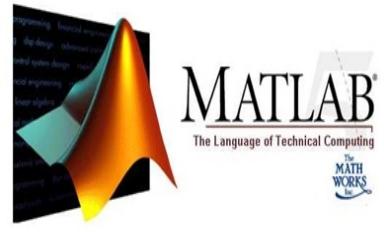
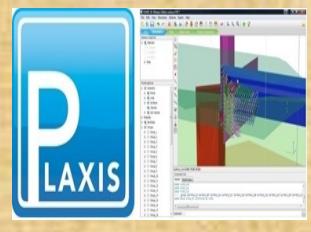
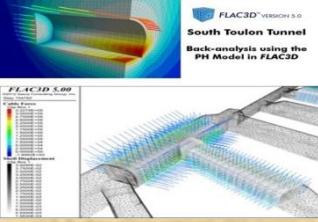
## Environmental Engineering Laboratory

		
DLS Particle size analyzer (Anton paar- Litesizer 500)	Malvern-Zeta sizer (ZS-90)	UV Visible Spectrophotometer , Thermo Scientific – Evolution 220
		
Ion Chromatography, Metrohm -882 Compact IC Plus	Total Organic Carbon (TOC) Analyzer, IO Analytical –Aurora 1030	Atomic Absorption Spectroscopy (Flame & Furnace) Thermo Scientific -iCE3500
		
Inductively coupled plasma mass spectrometry (ICP-MS) Agilent -7800	Malvern - Nanoparticle Tracking Analyzer (NS300)	Carbon hydrogen nitrogen sulfur (CHNS) analyzer, LECO-Truespec micro

## Water Resources Engineering Laboratory

		
Floating body apparatus	Bernoullis apparatus	Seepage Flow Apparatus
		
Hydrograph after precipitation with speed Censor	Centrifugal Pump and Speed Sensor	Hydraulic Flume
		
Base Module Apparatus	Orifice meter Apparatus	Hydrostatic pressure measuring apparatus

## CAD Laboratory

		
STAAD-Pro & STAAD-Foundation	ABAQUS 6.12	AutoCAD 2015
		
Matlab R2016a	SAP2000 v16	Plaxis 2D & 3D
		
FLAC 3D & 2D	LISCAD	GeoStudio

## Geomatics Engineering Laboratory

	
Total Station	Electronic Theodolite
	
Global positioning system	Differential Global positioning system

## Workshop



## Student's Activities

### Association of Civil Engineers (ACE)

ACE is a student and faculty body at IIT PATNA. It consists of UG and PG chapter. The PG chapter focuses on multiple events ranges from seminar, workshop, presentation, talks, guest lecture, recent developments in civil engineering, sports activities and many more. It gives platform to students and facilities to interact with each other which helps them to know the ongoing research in the institute. The organization also looks after students physical and mental health.

### Samnivesha

Samnivesha is the two-day civil technical fest of IIT Patna organized by ACE of DCEE. The idea behind Samnivesha was to provide people with the glimpse of depth of beauty of the field of Civil Engineering and the idea was certainly fulfilled. The two days provided are certainly something to behold. The maiden edition witnessed a footfall of over 300 people from outside the campus of IIT Patna.

The events organized are spectacular and interesting for each and everybody present. Workshops and Quiz are also organized for the participants. Other events which caught participants eyes were Richter 9.0, Blueprint, House of Cards, Research Conclave.

# Sponsored Projects

<b>Title</b>	<b>Sponsoring Agency</b>	<b>Budget</b>	<b>Duration</b>
Robust and reliability-based design optimization and performance assessment of super elastic shape memory alloy (SMA) damper for seismic vibration control of structures	SERB	16.73 Lacs	24 months
Performance based bituminous mix and road design	SERB	28.38 Lacs	24 months
Experimental and Numerical Investigation of Interlocking Details for Stone Masonry under Quasi-Static Cyclic Loading	Building Construction Department, Govt. of Bihar	9.58 Lacs	9 months
In-situ remediation of arsenic by ferrous sulfide under heterogeneous porous media Up-scaling effect and evaluation of long-term fate	DST-WTI	47 Lacs	36 months
Experimental evaluation of THM processes in smectite clay and their key barrier functions	BRNS, Dept. of Atomic Energy	35.48 Lacs	36 months
Study of variation in the flow hydrodynamics around a circular bridge pier in a sand mined stream channel	SERB	27.27 Lacs	24 months
Performance Assessment of Roads Constructed using waste plastics	NRIDA	20.50 Lacs	18 months
Seismic strengthening of unreinforced masonry building using ferrocement bands	CSIR	11.50 Lacs	36 months
Seismic design and performance verification of confined masonry walls for medium rise buildings	SERB	26.4 Lacs	36 months

# Uniqueness of M. Tech in CE at IITP

In Bihar, IIT Patna is one of the few institutes those provide masters degree in Civil Engineering.

The courses offered here, are not bound to be from a particular discipline. Students get freedom to opt for the field of study, based on their interests.

The design courses provide holistic idea of various design which include Buildings, Water tanks, Highways, Railways, Retaining walls, Foundations, Water resources, etc. Design courses include the use of many softwares which often are used in industry practices.

The program is designed to provide in-depth knowledge in the fundamentals, design, analysis and implementation of solutions for modern-days Civil Infrastructure problems.

Moreover, the program intends to emphasize application-oriented and thesis/project-based learning.

# Past Recruiters



KEC International Limited



# Our Esteemed Alumni

Abhishek Anand  
Engineering wing,  
Govt. of Bihar

Kumar Nishant Ujjawal  
RCD,  
Govt. of Bihar

Purushottam K Chaudhary R  
CD,  
Govt. of Bihar

Somya Shrivastava  
Assistant Manager,  
Power Grid

Nishant Niloy  
Assoc. Eng,  
COWI India Ltd.

Rahul Raj Singh  
Pursuing PhD,  
MSU, Michigan

Ravishek Kumar  
Assistant Executive Engg,  
MoRTH

Mohd Zia Hussain  
Asst. Prof.,  
MIT Muzaffarpur

Pintu Kumar  
Asst. Prof.,  
Cambridge Inst. of Tech.

Dr. Vishal Puri  
Asst. Prof,  
J C Bose University, YMC  
A

Rohan Kumar Choudary  
Asst. Prof.,  
Sandip University

Shailendra Kumar Singh  
JTS,  
IIT Patna



## Contact Us

### Training and Placement Cell (TPC)

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#### Professor-in-charge, TPC

*Dr. Jose V Parambil*

Email: [pic\\_tnp@iitp.ac.in](mailto:pic_tnp@iitp.ac.in)

#### Training & Placement Officer

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#### Department's T&P Coordinator

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#### Department's Faculty Incharge

*Dr. Bachu Anilkumar*

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#### Asst. Head Coordinators

##### ■ *Avinash Kumar Mishra*

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