

CEPT
UNIVERSITY

FACULTY
OF TECHNOLOGY

PROGRAM BROCHURE

2023



M.TECH CONSTRUCTION ENGINEERING AND MANAGEMENT

FACULTY OF TECHNOLOGY



Table of Contents

Emerging Trends in Construction Engineering and Management	3
About CEPT University	4
Faculty of Technology at CEPT University	4
Master's in Construction Engineering and Management	5
Dean's Message	6
Program Chair's Message	7
Core Competencies	8
Course Pedagogy	10
Course Structure	11
Electives & Summer Winter School	12
Learning Environment & Campus Life	14
Student Activities	15
Student's Chapters	16
Collaborations	16
Participation and Achievements	18
Program Tutors	20
Career Opportunities	23
Alumni Testimonials	24
Admission Procedure	27





Emerging Trends in Construction Engineering and Management

The Indian construction industry is expected to become the third largest globally. It is also one of the largest employment generating sector in India with more than 44 million people employees. This boom in the industry comes from numerous government initiatives to satisfy the increasing demands for housing, social infrastructure, and street networks.

Construction engineers and managers have a crucial role to play in executing projects under such initiatives and otherwise, to deliver safe, functional, and creative infrastructure solutions quickly and effectively. CEM professionals develop an understanding of the various stages of a project- from creating, to organizing, to financing. They are able to design and execute the processes for building and maintaining large infrastructural projects. Additionally, they also have the skills to use appropriate techniques and equipment to ensure site safety and efficiency.

About CEPT University

CEPT University focuses on understanding, designing, planning, constructing and managing human habitats. Through its education, research and advisory activities, it strives to improve the impact of habitat professions in enriching the lives of people in India's villages, towns and cities.

The University comprises five faculties— **Faculty of Architecture (FA)**, **Faculty of Planning (FP)**, **Faculty of Technology (FT)**, **Faculty of Design (FD)** **Faculty of Management (FM)**.

Faculty of Technology at CEPT University

CEPT established the School of Building Science and Technology (SBST) in 1982 that focuses on issues concerning construction & management of human habitats and cities. SBST has now been renamed as Faculty of Technology (FT).

FT offers a five years' undergraduate program in **Bachelor's in Civil Engineering (Honours)**. The erstwhile program of Bachelor's in Construction Technology (BCT) is now restructured as Bachelor's in Civil Engineering (BCE) from the Academic year 2023-24. Postgraduate programs offered at FT include **M.Tech. in Construction Engineering & Management (MCEM)**, **Structural Engineering Design (MSED)**, **Geomatics (MGeo)** and **Building Energy Performance (MBEP)**.

Master's in Construction Engineering and Management

MTech in Construction Engineering and Management (MCEM) program, formally known as Construction Project management (CPM), was conceived in 1995 at the CEPT University. This is a two-year full-time post-graduate program leading to Master's of Technology (M. Tech) in Construction Engineering and Management.

It has been widely recognized that construction managers play a crucial role in the development of built environment and infrastructure. This program aims to train engineers and architects to become competent professionals in the field of construction engineering and management. The teaching programs at CEPT University focus on building professional capacities. Therefore, they are centered on studio based pedagogy, which is inclusive of simulation of real life projects (buildings, infrastructure etc.). The courses aim to develop conceptual, analytical abilities, problem solving skills of students.

Graduates of this program can build successful careers in construction management, with leading government and private agencies. Many choose to work with leading construction organizations, infrastructure developers and advisory firms in the country and abroad. Some graduates undertake doctoral studies and further research at some of the best universities and research institutions across the world.

Dean's Message



Dr. Aanal Shah

Acting Dean

CEPT's teaching programs aim to build thoughtful professionals, where the students are engaged with studios offering well designed, life-like problems of the industry. This objective is realized by the collaborative work of eminent practicing professionals and faculty members of the university.

The M.Tech in Construction Engineering and Management (MCEM) is a highly reputed program across India and trains students to understand the dynamics of the construction industry. Students of this program emerge as efficient construction managers as, during their two year tenure with the University, they work with extreme rigor on real-life problems concerning contract preparation, efficient planning of construction activities, and futuristic construction practices.

At CEPT University, students have the opportunity to engage with professionals from other fields such as architecture, planning, management, and design. The interdisciplinary and collaborative spirit of the university prepares students to face professional challenges with a philanthropic approach of solving the larger issues of the society. Students can also participate in exchange programs, national and international seminars, workshops and summer schools pertaining to the construction industry.

Students from our program contribute to the built environment as entrepreneurs, construction managers, or academicians. I look forward to inviting the new batch of young and passionate students to our program!

Program Chair's Message



Dr. Jyoti Trivedi

Program Chair

Core Faculty

The M.Tech in Construction Engineering and Management program at CEPT University pulls out all the stops to create outstanding construction project managers, using advanced teaching techniques, learning aids and state of the art research facilities. The M.Tech in Construction Engineering and Management program equips students to adapt to futuristic technologies and newer trends in the construction market. At a time when the construction sector is facing the challenge of COVID19, its control drivers are automation and digitization, which are helping this industry in regaining its footing. The current crises with an indefinite timeline will compel the industry to automate the workflows and processes using technologies, and the early adopters will benefit the most. This course trains the students towards digital transformation of the AECO sector. It is a highly sought after program that focuses on all vital areas of construction life-cycle of a project.

Core Competencies

The role of engineers in the construction industry is changing to meet the demands of the future. The MCEM program's learning pedagogy is geared toward equipping young professionals with the skills they will need to meet the sector's problems and changing dynamics.

Students are not only made professionals in technical and managerial aspects, but also in interpersonal skills, software skills, to help them excel in a fast paced world. We produce competent professionals, capable of taking on challenges and are trained to add value to the real estate and infrastructure sector. Along with this, core courses, elective courses, and research projects, develop theoretical, conceptual, practical and analytical abilities of students, and enhance problem-solving skill by encouraging peer-learning.

Training of professionals as part of this program focuses on following areas: project management, contracts management, construction quality, safety and equipment management, supply chain management of construction projects, modern construction materials and technologies, and computer applications in construction.



Course Pedagogy

M. Tech in Construction Engineering and Management program is a flagship course that promotes careers in construction management. The course is designed as a knowledge consortium of construction technology, organization, time management, and information and communication management, team management, risk management and presentation skills.

The MCEM program focuses on building professional capacities. It is centered on a studio-based pedagogy, inclusive of simulation and analysis of real-life problems. The course work is designed to be hands-on for a period of the first 3 semesters; the students are required to take a 12-credit studio course and three 2-credits mandatory courses. A wide variety of interdisciplinary elective courses are offered to students each semester from all the five faculties. The students focus on their DRP (Directed Research Project) in the fourth semester. Students also learn to use project management software (MS Project, Primavera) along with BIM applications and simulate live projects in order to get exposed to the field of practices. The program focuses on the main principles and techniques of planning, control, execution and operation of construction projects.



Course Structure

The M.Tech Construction Engineering Management is a two years (four semesters) program at CEPT University. The course work is designed to be hands-on for a period of the first 3 semesters; the students are required to take a 12-credit studio course and three 2-credit mandatory courses.

Total: 80 credits

Studio: 12 credits each, Mandatory courses: 2 credits each*

Thesis/DRP: 14 credits

Others (Electives + SWS): 12 credits

Studios	Mandatory Courses
Construction Project Formulation and Appraisal Studio	<ul style="list-style-type: none"> • Computer Applications in Construction • Construction Contracts • Communications Skills and Writing Course
Construction Execution, Monitoring and Control Studio	<ul style="list-style-type: none"> • Advanced Construction Practices • Lean Construction, Concepts, Tools and techniques • Construction Safety Practices
Integrated Construction Practices Studio	<ul style="list-style-type: none"> • Mechanical Electrical Plumbing and Fire Fighting (MEPF) Services • Strategic Management for Construction • Facility Management: Operations and Maintenance

Elective Courses offered

1. ERP for Construction
2. Dynamics of Real Estate
3. PPP for Infrastructure
4. Construction and Allied Laws
5. Real Estate and Valuation
6. EIA for Infrastructure Projects
7. Construction Economics and Finance

*The course/titles may change as a part of regular updating and improvements

Electives & Summer Winter School

CEPT University cherishes the individual interests and abilities of its students. Students get a chance to chart their own learning paths by completing a portion of their credits by choosing from a wide range of elective courses offered at any of the five faculties at the University. It gives them a greater exposure to a wide range of disciplines related to built-environment and an opportunity to collaborate on a multi-disciplinary campus.

The Summer Winter School (SWS) programs differ from the regular semesters in terms of structure, approach and content. The key words that capture the spirit of SWS are experiment, variety and innovation. They explore emerging areas, provide space to test new ideas and methods, facilitate in-situ experience, help understand critical sites and situations, and create opportunities to learn by making. The courses in SWS are intense and are for short durations of between two to four weeks. Following is an indicative list of courses opted by our students:

Indicative list of elective courses and SWS courses opted by students:

Electives:

- Graph Theory and Applications,
- Excel and R studio
- Design Thinking and Business Model generation
- Understanding Scientific Research (Its Relevance for Architecture, Planning and Design)

SWS Course:

- Coastal Development, Vulnerability and Resilience: Sri Lanka and India,
- Smart Urban Development (Project formulation, prioritisation, implementation)
- 21st Century Professional Skills
- Smart Cities: Role Of Engineers In Urban Transformation,
- Writing for impact: producing effective and attractive documents,
- Business Management Essentials



Learning Environment & Campus Life

The atmosphere on CEPT campus is lively and conducive to free thinking. Interdisciplinary learning is encouraged and students get to collaborate with other built-environment professionals within the ecosystem of CEPT University. The University often invites some of the brightest minds from around the world to speak to students on cutting-edge developments in construction, architecture, planning, design, urban habitat development, and other global issues.

Students have access to workshops and fabrication laboratories equipped with state of art facilities. Recently FT-BIM Advancement Lab in association with Bentley BIM Institute with more than 50+softwares has been initiated at FT. This facility at FT will be the nucleus for a consortium of facility owners, contractors, consultants, and researchers formed to address need-based research for the industry. The state-of-the-art library, in-house IT support, premium printing and stationery facilities, student service office, university press and other services are some additional facilities that enhance the learning environment at the university.

In 2021, CEPT hosted the Indian Lean Construction Conference (ILCC) to bring together construction industry professionals and academia to exchange ideas on the theme of "Reinventing with Lean Post Covid".



Student Activities

CEPT University boasts of a multifaceted culture on and off-campus, reinforcing its image as an institute that inculcates all-round development of its students. The diverse community comes together to celebrate traditional and regional festivals on-campus throughout the year. Sports competitions such as the Amity Cricket Cup, Volleyball Tournament, Box Cricket League, and others fosters a positive environment, giving ample opportunities to participate.

At the Faculty of Technology, Student Chapters organize online and on-campus events for students to meet and learn from industry professionals and engage with peers. The FT newsletter is published by the student body quarterly, highlighting student/ faculty activities and achievements, important events, alumni interactions, placement and internship details, and insights on industry. Our strong alumni network gives students a chance to get in touch with them about future career prospects through the Student- Alumni Interaction platform.

Our students also actively participate in national scholarship programs, conferences, and technical competitions. The Faculty of Technology also collaborates with premier institutes such as ESRI and celebrates Engineer's Day, GIS day, and Remote Sensing day with active students participation. During Engineer's Day each year, students work around a topic to create awareness through role-play activities, lecture from eminent personalities, quiz contests etc.



Student's Chapters

Student's Chapters are formed with various objectives, some subject-specific, but broadly these chapters shall bridge the gap between standard academic courses and the current industrial practices. Students learn to work in groups, organize events, the opportunity to interact with industry experts, and participate in events and competitions.

They facilitate:

1. Better connection with associations and their activities.
2. Can participate in online webinar series, e-courses, expert lectures, and other programs offered by such organizations.
3. Students get the opportunity to volunteer for association events, thereby enhancing their organizational skills.
4. Opportunities for interaction with professionals for a future career path, recent trends, research, etc.
5. Association helps to promote events within their group resulting in better participation.
6. Institute gets resource persons for their academic programs and juries.

Below are the student chapters initiated by The Faculty of Technology :

1. IAStructe - Indian Association of Structural Engineering -Established in 2019
2. ICI - Indian Concrete Institute -Established in December 2018
3. IPA - Indian Plumbing Association -Established in November 2021
4. IEEE GRSS - Geoscience and Remote Sensing Society -Established in October 2022
5. ICACI - India Chapter of American Concrete Institute -Established in December 2022

Collaborations

The Faculty of Technology (FT) is keen to develop collaborations with renowned industries under the umbrella of MOU and EOI on a willingness to undertake activities related to research and development in the construction sector. The 3 major domains of collaborations are within the industry (DRP, placements, and/or Internships), international universities for exchange programs, and students' chapters with professional associations.

The following are the updates till date-for the year-2021-2022 :

1. Industry MOUs:

- Artocrete Possible Collaborative Initiatives: Lecture series on concrete, DRP related to concrete, Competition on concrete, Material support, Internship and Placements at FT for Bachelor's in Civil Engineering (Honours) program.
- Vconstruct Private Ltd.Pune based Construction Company Supports DRP,Internship and Placements at FT. Vconstruct also supports as well as Sponsored DRPs for Master's in Construction Engineering and Management (MCEM) and Bachelor's in Civil Engineering (Honours) programs.
- Visilean Cloudbased Solution Providers Placement support as well as sponsored DRPs for Master's in Construction Engineering and Management (MCEM) and Bachelor's in Civil Engineering (Honours) programs.
- DigiQc digitizing construction Placement/Internship support as well as Sponsored DRPs for Master's in Construction Engineering and Management (MCEM) program.
- Association of Geospatial Industries (AGI) supports DRPs, Internships, and Placements for students at FT Master's in Geomatics (MGEO).
- Shivalik Group of Companies supports DRPs, Internships, and Placements at Master's in Construction Engineering and Management (MCEM) and Bachelor's in Civil Engineering (Honours) viprograms.
- NeoGeo Technologies Private Ltd. supports DRPs, Internships, and Placements at FT Master's in Geomatics (MGEO).

2. FT International Universities - Exchange Programs

- University of Melbourne - Australia
- Polis University - Albania
- HFT Stuttgart University - Germany
- Instituto Politécnico de Castelo Branco (IPCB) - Portugal
- Polimi University - Italy

3. Industry sponsorships for students and Studios

- ET-TMT- "Build it Right" MOU to sponsor Annual Lecture Series on Engineer's Day Event 15th September for the period of 5 years till 2023.
- CEPT-PSP Scholarships

Participation and Achievements

2021 -----

- Student won the Olous Innovative Minds Contest 2021 for his work 'VR Construction Execution Game' developed for construction education and training purposes, to learn new skills through immersive experience.

2021 -----

- Students and faculties presented papers at Research and Academic Conference 2021 (virtual) by Project Management Institute (PMI), held at IIT Mumbai in March 2021 on the theme of "Enhancing Project Performance: Application of Artificial Intelligence (AI) and Decision Science".

2021 -----

- Students and faculties presented papers for the IGLC-2021 29th Annual Conference of the International Group for Lean Construction under the theme of "Lean Construction in Crisis Times: Responding to the Post-Pandemic AEC Industry Challenges".

2021 -----

- Student won gold medal for regional level Indiaskills competition organised by National Skill Development Corporation.



Program Tutors



Jyoti Trivedi
Ph.D. (Core Faculty)



Ganesh Devkar
Ph.D. (Core Faculty)



Devanshu Pandit
Ph.D. (Core Faculty)



Vatsal Patel
(Core Faculty)



Reshma Shah
(Visiting Faculty)



Ami Divatia
Ph.D. (Visiting Faculty)



Bhargav Dave
Ph.D. (Visiting Faculty)



Amar Sanghvi
(Visiting Faculty)



Shamina Ansari
Ph.D. (Visiting Faculty)



Abrar Ali Saiyed
Ph.D. (Visiting Faculty)



Rajesh Ganatra
(Visiting Faculty)



Rajnikant Trivedi
(Visiting Faculty)





Career Opportunities

Graduates of the MCEM program are doing impactful work and building their careers in government organizations, corporate houses, academic and research institutes and as entrepreneurs and tech start-up founders in the urban sector.

				
				
				
				
				
				

Alumni Testimonials



Ishan Juneja

Assistant General Manager,
CBRE South Asia Pvt. Ltd.

"As an architect, you like seeing how the project you designed is progressing on the construction site, but there are very few instances to learn about the practical aspects of building construction. Thus, to gain more practical and managerial knowledge in the field of construction, I opted for the M.Tech in Construction & Project Management from CEPT University. The course covers almost all facets of the construction industry, including advanced construction technologies, project planning, contract management, fundamentals of real estate, project finance, facility management, and business development, among others. After completing the program, I felt confident that I could now perform any role in top organizations of the Real Estate Sector. In my current role at CBRE, I am utilizing the skills in managing the business and multiple client accounts."



Harish K.V.S

Assistant Project Support Officer,
ATKINS

"The CEPT MCEM course undertakes a practical studio-based pedagogy in harmony with the industry. The curriculum teaches all the project life cycle stages, including inception, development, execution and operation & maintenance. The course helps students understand the bigger picture of construction project management by exposing them to courses like contracts and finance. This enables them to fit into a range of job profiles."



Rushit Modi

Senior Development Manager,
Synergy Properties

"The MCEM course design has ensured the amalgamation of technical and managerial subjects for the industry. It is one of the top courses in the country for advancing an engineer's mindset and skill set to managerial and leadership levels. It holistically covers all topics from core civil engineering to finance, management, real estate, BIM, industrial software, etc. The core and visiting faculties are extremely experienced and highly regarded in their respective fields. Interactions with the industry's best minds and trailblazers is one of the most valuable aspects of studying here. Working with students and faculties from across fields of built environment, helps in understanding the different approaches which benefit in collaborating at a later stage in professional life. Studying at CEPT was truly a life changing experience!"



Porus Patwari

Associate (Executive in Transaction
& Corporate Finance), EY

"The construction industry might be the only industry that still values experience over talent, and that contradicts with the education system of most of the engineering institutions in India. However, the studio-based approach of MCEM combined the theoretical knowledge of techniques with the practical application of project sites and stakeholders to provide me with a holistic worldview of the industry. This prepared me for the industry by helping me understand its past and present and providing me with the knowledge, tools, capabilities and confidence to attempt to shape its future."



Admission Procedure

How to apply?

The entire application process will be held online.

Visit www.admissions.cept.ac.in to know more.

Minimum qualification and eligibility criteria

Students with the following qualifications can apply for the M.Tech in Construction Engineering and Management program:

1. BE/ B.Tech or equivalent in Civil Engineering, Construction Technology, Environmental Engineering, and Architecture and Urban Design (Architecture and Urban Design- minimum 5 years) from a recognized University/ Institution.

Only those applicants who meet the following eligibility criteria will be considered for the evaluation process.

- Applicants from the general category shall have a minimum of 55 % aggregate marks and those in the reserved categories shall have a minimum of 50 % aggregate marks in qualifying degree (or equivalent) from a recognized University/ Institution.
- Candidate shall have cleared XII Examination in the science stream with Mathematics and Physics as required subject.

Contact details

Dr. Jyoti Trivedi | Program Chair

Email: jyoti@cept.ac.in

Ms. Disha Shah | Admin

Email: disha.shah@cept.ac.in

Contact Number: +91-79-68310000 Ext. 332



@Faculty of Technology CEPT University



@Faculty of Technology, CEPT University (FT-PG)



@ftpg_cept



@cem_cept



CEPT admissions office

Email: admissions@cept.ac.in

Contact Number : +91 79 68310000,

+91 79 26302430

Toll free number: 1800-270-4030

CEPT University

K.L. Campus, University Road,

Navrangpura, Ahmedabad - 380009

Gujarat, India

www.cept.ac.in