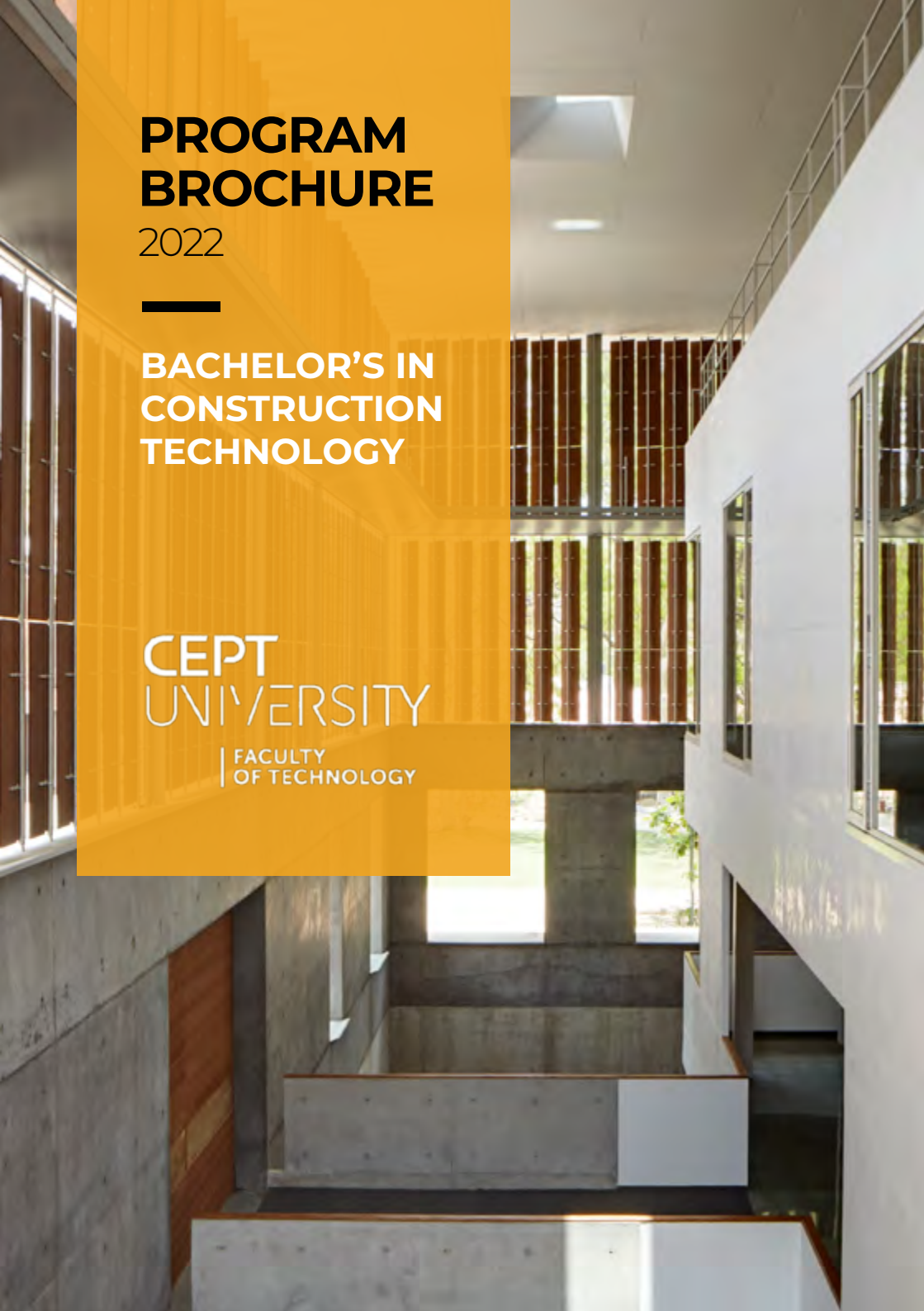
PROGRAM BROCHURE

2022

BACHELOR'S IN CONSTRUCTION TECHNOLOGY

CEPT UNIVERSITY

FACULTY OF TECHNOLOGY

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Shaping the Future of Construction and Infrastructure in our Cities

The world is evolving faster than ever before. Rapid urbanization and other global mega trends will necessitate housing as well as social, transportation, and utility infrastructure. The engineering and construction sector has a long way to go, especially in the light of looming climate change threats and technological breakthroughs.

The construction industry is also critical to our country's development, and is expected to grow much more in the coming years. According to Invest India (National Investment Promotion & Facilitation Agency),

- Construction is the second largest recipient sector for India in 2020-21.
- The construction market will be the third largest globally, by 2022
- The construction Industry in India is expected to reach $1.4 Tn by 2025

Growth in the construction industry will greatly contribute to the advancement of future cities in India. This will require adoption of smarter, more sustainable, resilient, and innovative infrastructure and real estate solutions, as well as the development of a new generation of talent. We will need a new cadre of skilled professionals globally who will meet expanding needs of development, adapt to technology changes, and be future problem solvers!

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' **Bachelor's in Construction Technology** and multiple two years' Postgraduate programs (PG). The PG programs include— **M.Tech. in Construction Engineering & Management (MCEM), M.Tech. in Structural Engineering Design (MSED), M.Tech. in Geomatics (MGEO) and M.Tech in Building Energy Performance (MBEP).**

Bachelor's in Construction Technology (BCT)

The five–year undergraduate (UG) program in Construction Technology at CEPT University is a unique engineering program focused on problem-solving and technological innovation in construction. It is situated within an ecosystem of allied disciplines like architecture, planning and management all of which focus on built-environments.

It is the only engineering program in India that is centered on studio-based teaching pedagogy. Small groups of students engage with real-life problems under the guidance of studio tutors. The 'studio' constitutes bulk of the academic credits in any given semester. It is supported with mandatory courses, electives and skill-enhancing workshops aimed at expanding conceptual and analytical abilities of students. Students also have the opportunity to engage in various professional chapters such as the IstructE (CEPT University Student Chapter) and Indian Plumbing Association (Ahmedabad CEPT University Student Chapter), to meet and learn from industry professionals and engage with peers.

The faculty in the program comprises of highly experienced academicians with excellent academic and professional vigor. Apart from the full-time faculty members, visiting professors and practicing professionals from the industry regularly teach studios and courses bringing practical experience to the classroom.

The BCT program also has a strong network of 1500+ alumni who are making an impact in the construction sector in India and abroad. The network gives students a chance to get in touch with them about future career prospects through the Student- Alumni Interaction platform.

Dean's Message

Dr. Aanal Shah
Acting Dean

CEPT University offers teaching programs, aimed to build thoughtful professionals, where the students are engaged with studios offering well-designed life-like problems. This objective is realized by collaborative work of eminent practicing professionals and faculty members of the university. Faculty of Technology is one of the five faculties of CEPT University offering an undergraduate program of Bachelor of Construction Technology (BCT).

The BCT program is a highly reputed program across India and is training students to understand the dynamics of the construction industry. Students of this program emerge as efficient overall engineers with the array of courses offered from engineering materials, building services to construction technology, environmental engineering and geo-technical engineering. The areas related to analysis and design of steel and reinforced concrete structures are deepened by learning through studio pedagogy. Students are trained rigorously on site for about 6 months and develop their ability of self-learning by doing an independent research study in the last year of their study. It is indeed overwhelming to see that the Graduates from this program have embarked upon the professional journey as entrepreneurs, structural designers, construction managers or academicians. Some of them have chosen a path of higher studies and research.

If you are passionate about improving the built environment in our cities and want to pursue an exciting career in the rapidly growing construction, real estate, and infrastructure sector, then this program is for you!

Program Chair's Message

Prof. Tushar Bose
Program Chair
Core Faculty

Globally, there are fundamental shifts in the construction industry landscape. Urbanization is expected to charge growth in emerging markets. With urbanization, the issue of climate change will continue to escalate as a driving force behind construction decisions. The industry is also witnessing a greater use of technology and innovations that can enhance efficiency. Artificial intelligence (AI) and software systems are increasingly being employed across engineering and construction value chain.

With these changing trends, the industry is going to need people with higher order thinking and innovative skills to create cost-effective, user friendly, sustainable and financially viable solutions in high paying jobs and entrepreneurship ventures. Solution oriented engineers with domain knowledge about the industry, ranging from finance, technology to management, will be required. Strong communication and problem solving abilities will become very valuable.

The BCT program prepares young aspirants to become future engineers, who can respond rapidly to the latest industry trends. We encourage innovation and design thinking in our studio based learning. Our students are competent to collaborate with interdisciplinary teams as a result of the exposure they gain within the CEPT ecosystem, interacting with other built-environment professionals. At the end of the 5 years, our graduates are equipped with the essential knowledge, expertise and key skill-sets required to succeed in the diverse career paths they may chose and are prepared to make a significant impact in the industry.

Course Pedagogy

The Bachelor's in Construction Technology Program is divided into three levels; Level 1 (L1- 1st year), Level 2 (L2- 2nd and 3rd year) and Level 3 (L3- 4th and 5th year). The program curriculum comprises of the CEPT Foundation Program (CFP) in level 1, and the Directed Research Projects (DRP) and professional training which are introduced at a later stage of the curriculum once the students have accomplished the studios and subjects of L2.

Studio units:

Studio based learning is the mainstay of teaching and learning at CEPT. Small groups of 12-15 students engage with life-like problems under the guidance of one or two tutors. Studio units are focused on building students' abilities, exposure to concepts and ideas, and developing their individuality and voice.

L1: Level 1 students undergo set of courses to develop basic observational, drawing, making, problem-solving and communication skills. The students acquire these skills at the CFP.

L2: Level 2 students undertake L2 studio units that builds students' abilities around: 1) Analyzing and designing, 2) Constructing & specifying, 3) Planning and organizing, building arguments & rationales.

L3: Level 3 students undertake L3 studio units focused on thematic expertise and individual problem-solving abilities to tackle complex engineering problems, address social, environmental, and technical concerns.

Courses:

Mandatory courses equip students with theoretical understanding in the primary discipline.

Electives:

Elective courses allow students to develop abilities and interest in areas other than their primary discipline. Students choose from an array of courses on offer in the regular semester or in the summer and winter schools.

Professional training:

After successful completion of 3rd year of the program, the students undertake professional training in one of the remaining semesters. Students are supposed to do an internship / professional training at an office or construction site and get in-depth knowledge in the particular field. Through this approach, the abilities for knowledge creation and attitude of lifelong learning are inculcated in the students giving them the freedom to sculpt their professional path. The students take professional training in infrastructure development projects such as Mumbai Metro, Ahmedabad Metro, Bullet Train Project, and associate with reputed construction companies such as Adani Infrastructure, SPCL, L & T. Students take office training in reputed PMC firms, MEP and design consultancy firms all over India.

Directed research project:

DRP projects are directed by an instructor/guide and are undertaken by students typically in the pre-final/final semester of studies. These projects are a part of a larger ongoing or proposed research project of the guide. Through DRPs, students learn to independently develop a research framework and undertake research.

Core Competencies

The role of engineers in the construction industry is changing to meet the demands of the future. The BCT 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.

At the end of the 5 years, students develop expertise to solve complex engineering problems and work across various streams. They build competencies to:

Analyze construction processes and materials	**Design and construct structures and service infrastructure**
Undertake resource planning	**Use contemporary software and cutting-edge technology for projects**
Innovate and use design thinking for problem solving	**Plan and organize for project implementation and management**
Formulate contracts and employ measures for safety and risk mitigation	**Effectively collaborate with diverse teams and built-environment professionals**

With the exposure from the program, many of our graduates are in top positions in different organizations and are making a significant impact in the industry, in India and abroad. Some of our alumni are also pursuing higher education at some of the world's most prestigious universities.

Course Structure

CEPT Foundation Program/Level 1 (40c)- Semester 1 and 2:

In their first year, students go through a common foundation program with students from Faculties of Architecture, Design and Planning. This allows them to learn across discipline boundaries. CFP focuses on developing key competencies like freehand, technical drawing and understanding materials and structures through model making.

Studios	Semester	Mandatory Courses
Level 2 Studio (14c):	Semester 3	1. History Of Construction Technology (2c) 2. Solid Mechanics (2c)
Level 2 Studios (14c)	Semester 4	1. Construction Materials (2c) 2. Structural Analysis (2c)
Level 2 Studios (14c)	Semester 5	1. Environmental Engineering (2c) 2. Fluid Mechanics (2c)
Level 2 Studios (14c)	Semester 6	1. Geotechnical Engineering (2c) 2. Transportation Engineering (2c)
L3 Studio (14c) or Professional Training (18c)	Semester 7 & Semester 8	1. Reinforced Concrete Structures: Construction and Design (2c) 2. Steel Structures: Construction and Design (2c) 3. Building Materials and Methods for Energy Efficiency (2c) 4. Building Services (2c)
L3 Studio (14c) or Professional Training (18c) or Directed Research Project	Semester 9 & Semester 10	1. Construction Project Management (2c) 2. Advanced Construction Technologies (2c) 3. Communication (2c) 4. Advanced Engineering Research Seminar (2c)

Level 2 and Level 3 courses offered in the past

	Course Title	Studio Tutor
L2	Deployable Structures – Through Kinetics of Origami	Bhairav Patel, Anand Viswanathan
	Free Space Covering Steel Structures	Dhara Shah, Rupal Shah
	Plumbing Design Studio	Dipsha Shah, Dipen Mehta
	CONCRETE: exploring its versatility	Nikunj Dave, Bhargav Tewar
	Network Design for Water Systems	Tushar Bose, Tapan Betai
	Form, Material, And Structure	Vinod Shah, Mangesh Balsare
	FaBricks: Customizing Bricks	Ashish Tiwari, Urvi Sheth
	Deployable Structures: Concepts and Explorations	Japan Shah, Anand Viswanathan
	Designing spaces in Reinforced Concrete	Kruti Shah, Rachit Sheth
	Structural Expressions in Masonry	Abuzar Puthawala, Muntaha Rushnaiwala
	Triangulating Bamboo	Mangesh Belsare, Abuzar Puthawala
	Designing Spaces in Steel	Pankti Pandya, Rupal Shah
	Exploring the Indigenous Construction Techniques and Reinterpreting them in the Modern Context	Siddharth Srivastava, Anand Panchal
	Geotechnical Parameters: Influencing Foundation Systems	Pavni Pandya, Chandresh Solanki
	Planning and Design of Road Infrastructure	Komal Parikh, Birva Joshi
	Form and Structure: Steel	Dhara Shah, Vasav Bhatt
L3	Waste Management Through Application in Construction	Bhargav Tewar, Nikunj Dave, Anjanee Patel
	MEPF: Services, Design and Coordination	Shamik Desai, Arpit Malviya
	Cantilevered Structures-Form, Material, Design and Construction	Soham Shah, Nipul Patel
	Engineering Sustainability: Impact of Design, Materials and Technologies	Dhawal Mistry, Varun Yadav
	Project Procurement Management	Reshma Shah, Maulik Shah
	Engineering Urban Water Systems	Tushar Bose, Janki Jethi

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.

Students also get a chance to select from a range of travel based courses organized as part of the Summer Winter School (SWS) programs. SWS courses 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. The courses in SWS are intense and are for short durations of between two to four weeks. Following is an indicative list of electives and SWS courses opted by our students:

List of Elective courses offered:

- Effective Communication for Engineers
- Programming with Excel and R Studio
- Cartography and Mapping
- Introduction to BIM
- Ports and Harbours
- Development Control Regulations and Real Estate Projects
- Traffic and Transportation Engineering
- Digital Tools for Project Management
- Applied Statistics with Python and Excel
- Real Estate and Valuation
- Environment Impact Assessment for Infrastructure Projects
- Perspectives of Urban Infrastructure

List of SWS courses offered

- Professional Practice for Engineers
- Exploring Nature based Infrastructure Solutions for Sustainable Urban Development
- Smart Cities: Role of Engineering in Urban Transformation
- Data Science and Machine Learning for Everyone
- Writing for Impact: Producing Effective and Attractive Documents
- Construction Supply Chain Management-Learning's through Case-Studies
- Building Services; Ensuring comfort, efficiency & safety in facilities

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.

Students have access to various resources such as workshops, CEPT labs, the CEPT library, IT labs, etc. Workshops and fabrication labs are equipped with state of the art machines including 3D printers and laser cutters. The CEPT labs are also equipped with material testing facility, which allow students to undertake experimental studies in structure design, concrete technology, geo-technical engineering, environmental engineering etc.

The state-of-the-art library has a wide variety of books, foreign journals, and other resources available to all students, making CEPT University one of the best in the country for built-environment resources. The 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.

Student Activities

CEPT University boasts of its multifarious and multifaceted culture on and off-campus, reinforcing its image of an institute that inculcates an all-round development of its students. The multicultural aspect of CEPT University makes it possible for students to celebrate traditional and regional festivals on campus with zest. Sports competitions such as the Amity Cricket Cup, Volleyball Tournament, Box Cricket League, and others, fosters a positive environment, giving ample opportunities to participate.

The Faculty of Technology, also celebrates the Engineer's day each year, in which students work around a topic to create awareness through role-play activities, lecture from eminent personalities, quiz contests etc. The celebration culminates with student performance nights and music concerts. Additionally, students also participate in other student committee driven programs, events and competitions. FT students frequently initiate socially responsible activities such as distribution of food packets, blood donation drive, and educating children of construction workers.

Awards & Recognitions

2021

- Students developed the 'Emergency Deployable Bridge' which was patented by the Government of India

2021

- Students won 2nd, 9th, and 10th place at the ICI-Quiz-O-Mania

2021

- Students won 1st and 2nd place at Nirman (A National Level Symposium)

2021

- Student awarded full scholarship to Purdue University, West Lafayette

2021

- Student presented research work titled 'Traditional Construction Practices from Northeast India: Heritage Value and Challenges of Conservation at Pre-COP-26 Summit

2021

- Student won 2nd prize at the India Skills Competition

2021

- Student won 1st and 3rd prize at the National Geotechnical Competition 'Geovisleshana'

2021

- Students secured 3rd and 5th rank at the Bridge Builder Competition by organized IIT Bombay

2021

- Student presented research paper on 'Critical Success Factors for Elevated Segmental Construction for Metro Project Systems in India' at the American Concrete Institute

2020

- Students presented papers at the ICOMOS India Scientific Symposium

2020

- Student proposal on 'Celebrating the intangible essence of Ahmedabad ' approved for World Heritage Volunteer Program

2020

- Student awarded the Shardashish Interschool Fellowship for Master of Science in Civil Engineering (Concentration: Structural Engineering) at Columbia University, New York

2020

- Students won the Ultratech Sparkling Star Contest

Program Tutors

Tushar Bose
(Core Faculty)

Devanshu Pandit
Ph.D, (Core Faculty)

Minu Agarwal
Ph.D, (Core Faculty)

Vatsal Patel
Ph.D, (Core Faculty)

Dipsha Shah
(Core Faculty)

Ganesh Devkar
Ph.D, (Core Faculty)

Jyoti Trivedi
Ph.D, (Core Faculty)

Komal Parikh
(Core Faculty)

Dipak Samal
Ph.D, (Core Faculty)

Pavni Pandya
(Core Faculty)

Rashmin Damle
Ph.D, (Core Faculty)

Bhargav Tewar
(Core Faculty)

Dhara Shah
Ph.D, (Core Faculty)

Pankti Pandya
(Visiting Faculty)

Reshma Shah
(Visiting Faculty)

Akhila Mutha
(Visiting Faculty)

Kanisha Vora
(Visiting Faculty)

Margi Modi
(Visiting Faculty)

Bhavin Shah
(Visiting Faculty)

Career Opportunities

Graduates of the program are working in multi-national design, infrastructure and construction corporations, consultancies, government agencies, academic and research institutes in India and overseas. Some of them have also started their own construction and technology ventures.


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Alumni Testimonials

Sudarshan Choudhary
Batch 2014

"The program is so well-designed that it combined theoretical study with a variety of intriguing practical challenges for my overall technical skill development. Multiple elective courses offered by the university gave me an added advantage to learn from the courses of my choice and interest. On-field training opportunities helped me develop professional characteristics that gave me a fair idea about working style of the construction industry in my early days, Beyond academics, the best thing at CEPT is its lovely campus and culture, which is always buzzing and offers so much to learn from. I take pride in being a Ceptian!"

Helly Gandhi
Batch 2016

"The BCT program combines theoretical and practical training. It is not limited to books, but its emphasis is on solving real problems. Not only did we learn how to work on construction and implementation of projects, but it also gave us the opportunity to investigate other aspects such as sustainability, waste management, and so on. I have also been able to have valuable guidance and interactions with experts from the construction industry, The program provides a great deal of exposure in terms of field studies and for networking with experts. It's been a personal and professional learning journey throughout the course."

Student Testimonials

Gaurav Goyal
Batch 2018

"The program is one of India's most unique engineering program. Since my first year, i have had site exposure which had improved my technical, practical and on-site knowledge. The studio pedagogy, which includes a specific problem statement for each lesson, aids me in analyzing, designing, constructing, specifying, planning and organizing and building arguments and rational. It prepares us for becoming future-ready."

Urvash Ribadia
Batch 2016

"Studying at the BCT Program, CEPT University, has been a remarkable experience for me. The three things that I value most are the focus on skill building, highly experienced and engaged tutors, and the vibrant CEPT Community. The studios are highly specialized, designed to develop and improve technical and soft skills over the course of 5 years. These skills gave me an edge over my peers during my practical training. I am also well equipped to work on advanced projects which will help me when I pursue a master's degree."

Admission Procedure

How to apply?

The entire application process will be held online.
Visit www.admissions.cept.ac.in to know more.

Eligibility criteria

Candidates who have cleared the qualifying examination from an eligible Board from the school located in India (Including Gujarat State) with minimum eligibility criteria as prescribed by AICTE/Council from time to time and have appeared in JEE (Main)- Paper 1 of corresponding year can apply for this course.

As per AICTE, for admission to Bachelor's in Construction Technology program a candidate should have:

1. Passed 10+2 examination with Physics/ Mathematics / Chemistry/ Computer Science/ Electronics/ Information Technology/ Biology/ Informatics Practices/ Biotechnology/ Technical Vocational subject/ Agriculture/ Engineering Graphics/ Business Studies/ Entrepreneurship (Any of the three). Obtained at least 45% marks in the above subjects taken together.

2. Cleared the qualifying examination from school located outside India with minimum eligibility criteria as prescribed by AICTE/Council from time to time, and equivalency defined by Association of Indian Universities (AIU), New Delhi shall be eligible for admission.

The candidate shall have to pass all the subjects of the qualifying examination from a single Board.

Scholarship

CEPT has a comprehensive scheme for scholarship. It is the endeavor of the University that no student be denied opportunity to pursue their studies for want of adequate financial resources. However no financial aid or scholarship would be automatic and will be subject to norms and criteria laid down by the University. Pending sanction of financial aid/award of scholarship students are required to make payment of fees and charges on the due dates.

CEPT Means cum Merit Scholarship

The CEPT Trust Scholarship that provides financial aid to students on the basis of means cum merit will be as per the criteria below. Means cum Merit Scholarship is one of the scholarship category among larger number of financial assistance that CEPT offers to the students. It is offered to both post graduate and undergraduate students. Scholarship ranging from 25% to 75% of the annual tuition fee is awarded to selected from among the eligible applicants.

To know more about scholarship opportunities, visit https://cept.ac.in/student-services/student-financial-aid

Contact details

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