



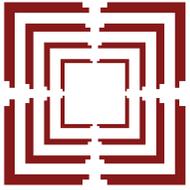
**Ahmedabad  
University**



## **School of Engineering and Applied Science**

**| Bachelor of Technology**

- Chemical Engineering
- Computer Science and Engineering
- Mechanical Engineering



## Ahmedabad University

Ahmedabad University is dedicated to rigorous academic pursuit with a focus on building inquiry as a value through interdisciplinary learning. We provide liberal education that prepares students to think deeply and creatively across fields and emerge as independent thinkers and compassionate leaders who can innovatively engage with the complex challenges of our society.

As a research university we are committed to the discovery of ideas than enhance our understanding of the issues that face our society.

We are building an environment where students and faculty explore by reflecting, challenging views and assumptions of each other through data and rigorous discussions, the collaborating to develop insights. This learning process is mediated by projects, field work and a belief that good theory leads to good practice.

Located in one of the India's most vibrant cities, Ahmedabad University has a unique mind-set to develop cultural and entrepreneurial abilities in our graduates. It was established in 2009 by the Ahmedabad Education Society which is an 85 years old foundation.



# School of Engineering and Applied Science

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The School of Engineering and Applied Science, Ahmedabad University was established in 2012 to impart contemporary engineering education.

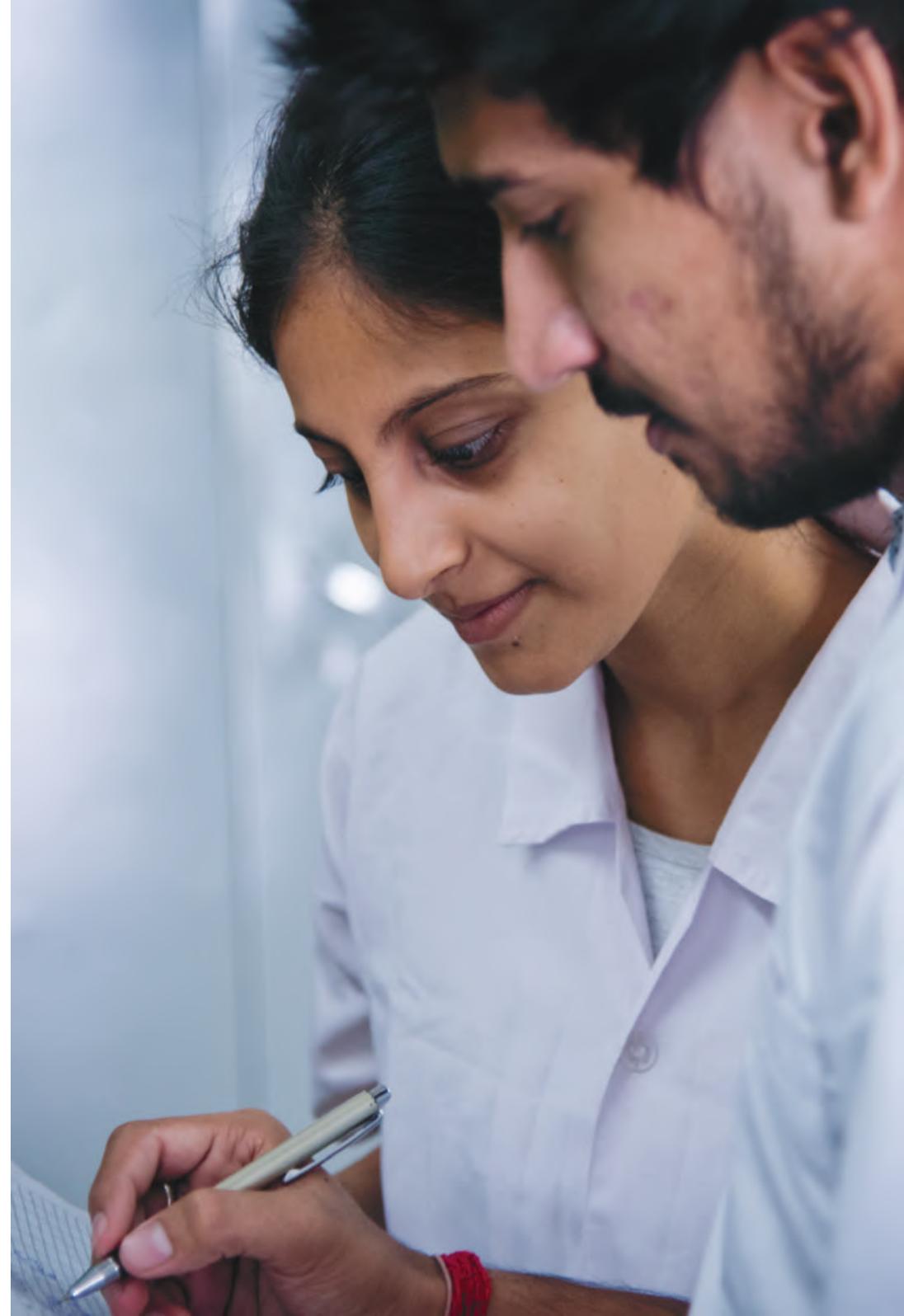
The school delivers undergraduate and graduate engineering programmes with extensive students-centric pedagogies to produce excellent learning outcomes. Our project-based educational approach creates dynamic and pro-active graduates with capabilities for lifelong learning, complex problem solving, design and innovation and relating technology to society. We not only teach technology; we actively infuse the use of technology in ways that are impossible with conventional approaches.

## Bachelor of Technology Programme

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The Bachelor of Technology programme at Ahmedabad University offers an entry point for careers and further studies in engineering and technology, while also preparing students for future roles as entrepreneurs and innovators. The unique curriculum offers a wholesome education, providing in-depth focus through Majors in different branches of engineering, alongside a robust multidisciplinary foundation in engineering, the humanities and the social sciences. Strong emphasis is laid on teamwork, design, learning-by-doing, project-based learning and developing communication skills. The education is contextualised within broad societal issues with sustainability being a common theme.

The underlying focus is on rigorous fundamentals and concepts, application to engineered equipment and systems, and hands-on learning about products and equipment in a multi-subject setting within each Major. The pedagogy emphasizes questioning, experimenting and developing learning skills that will enable students to face careers where change is the norm. Apart from classroom instruction, students are provided exposure to the engineering of products and design methodology in a laboratory setting, using contemporary tools of analysis and design, including software packages widely used in engineering industries.



# Programme Structure

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The School of Engineering and Applied Science offers three Majors within the Bachelor of Technology programme: Chemical Engineering, Computer Science and Engineering, and Mechanical Engineering. The core courses of each Major provide in-depth knowledge specific to the concerned branch, while a set of courses called Engineering Foundation, which is common to all Majors, imparts foundational knowledge and skills in topics fundamental to Engineering in general. These courses are complemented by practice-based, hands-on training in visualisation and graphics, product realisation along with design, innovation and making.

The essential prerequisite for Engineering Majors is Mathematics, which is taught in the first two semesters. During this time, students are also exposed to visualisation and product realisation and dissection. From the third semester, the Engineering Foundation curriculum builds the base for subsequent branch core courses, continuing into the seventh and eighth semesters. These courses are complemented by General Education Requirements courses. The summer following the sixth semester is earmarked for industry internship, followed by a Capstone Project spread over two semesters that will be executed in a multidisciplinary team setting. In the Capstone Project, students will identify a societal need and develop a comprehensive solution, while also addressing trans-engineering aspects, such as those related to the business model, costing, human interfaces, environmental impact and societal impact. Alternatively, students can plan their coursework such that they can execute an Off-campus Project in an industry in the final (eighth) semester in lieu of summer internship and two semesters of Capstone project. A student may also work on a Thesis aligned with his/her Major area of study or electives. The category-wise breakup of credits is as follows:

## CREDITS

<b>I</b>	<b>Foundation Programme</b>	<b>12</b>
<b>II</b>	<b>General Education Requirements</b>	<b>30</b>
<b>III</b>	<b>Major Engineering Requirements</b>	<b>86</b>
	Engineering Foundation	20
	Major Core	45
	Major Electives	12
	Internship	3
	and Capstone/Thesis	3+3
	OR Off-campus Industry Project	9
<b>IV</b>	<b>Free Electives</b>	<b>18</b>
<b>V</b>	<b>Volunteerism: Required</b>	
<b>TOTAL</b>		<b>146</b>

**Note:** A student can take a Minor in any Engineering discipline or in any other area designated as Minor in any other School or Centre of the University.



# Infrastructure and Facilities

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## Campus

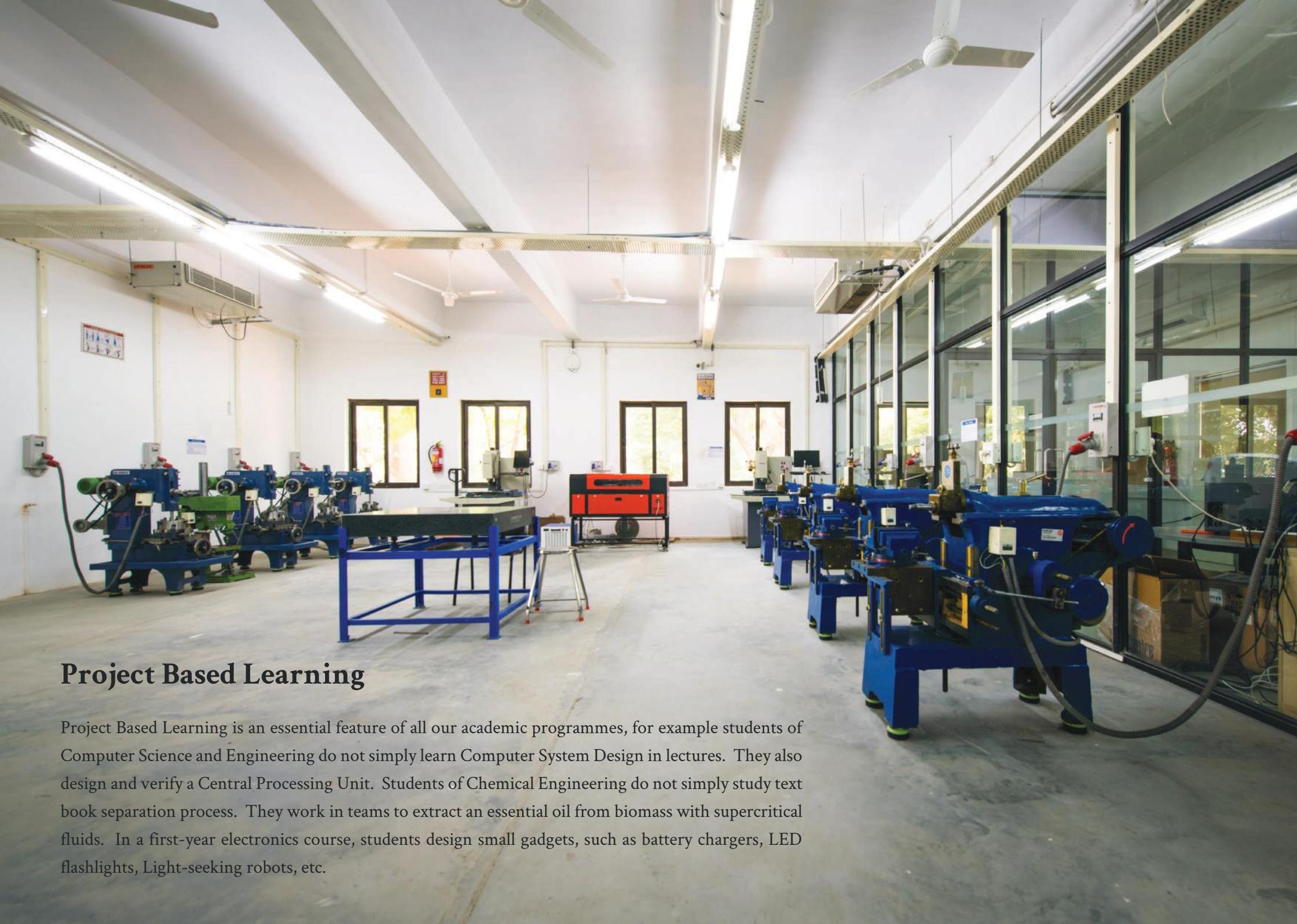
The expansive camps of the School of Engineering and Applied Science, Ahmedabad University houses state of the art facilities. The campus has wi-fi connectivity, an auditorium, cafeteria, large and small reconfigurable classrooms to facilitate Project Based Learning activities, many informal spaces for students' interaction, high-tech labs, a library, an incubation centre and many more.



## Laboratories

The School offers state-of-the-art laboratory facilities, providing excellent opportunities to test conceptual knowledge, pursue original research and advance students' understanding of the scientific method. All lab facilities follow the highest safety standards. Labs in the following areas are already established:

- CAD Lab
- Central Instrumentation and Research Laboratory
- Chemical Reaction Engineering Laboratory
- Communication Laboratory
- Computation Laboratories
- Control System Design Lab
- Data Analytics and Cloud Computing Laboratory
- Dynamics of Machines Lab
- Electronics Laboratory
- Embedded Systems and VLSI Laboratory
- Fabrication Shop
- Fluid Mechanics Lab
- Heat Transfer Lab
- Mass Transfer Laboratory
- Mechanical Engineering Laboratory
- Mechanical Operations Laboratory
- Networks and Operating Systems Laboratory
- Organic Chemistry Laboratory
- Physical and Inorganic Chemistry Laboratory
- Projects and Research Laboratory
- Robotics Lab



## Project Based Learning

Project Based Learning is an essential feature of all our academic programmes, for example students of Computer Science and Engineering do not simply learn Computer System Design in lectures. They also design and verify a Central Processing Unit. Students of Chemical Engineering do not simply study text book separation process. They work in teams to extract an essential oil from biomass with supercritical fluids. In a first-year electronics course, students design small gadgets, such as battery chargers, LED flashlights, Light-seeking robots, etc.

# Placements and Higher Education

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The Career Development Centre, or CDC, at Ahmedabad University provides services, resources and relevant experience to faculty and students. The Engineering School places special emphasis on its students' careers after graduation. To this end, the school's CDC is headed by a dedicated training and placement officer. It also comprises faculty representatives, student committee members and others who collaborate closely to make training and placement accessible and useful to every student.

The CDC handles all placement related information and activity, including contacting companies interested in hiring, student-industry interaction, on and off campus tests and interviews, placement sessions, pre-placement talks and general industry visits.

As placement is a continuous effort, we engage with industries throughout the year, not just in designated windows of time. We also welcome industry participation in our curriculum building process, and encourage feedback from the industry as we prepare students to research and work in the world outside Ahmedabad University.

## BTech in Computer Science and Engineering

- Some of the new key recruiters participated in the placement process this year are CodeNation, Tata Consultancy Services, AllinCall, Thomson Reuters, Shipmnts, InfocusP, Embibe, AwaazDe, Quixote, rtCamp, ezDI, Meditab, MotaData, Tatvic Analytics, Qviv Analytics, Amazon and Google

## BTech in Mechanical Engineering

- Forbes Marshall has been the highest paying organisation, along with some other key recruiters such as AmaraRaja, Asahi India, TATA AIG, PressureJet Systems, Amrut Energy, Secure Meters, Horizon Microtech

## BTech in Chemical Engineering

- Some of the new key recruiters participated in the placement process this year are Galaxy Surfactants, GNFC, Gulbrandsen and Mate Motherson



## Higher Education

Our students have been admitted to Master of Science programmes as well as management programmes at various globally known Universities and Institutes including the following:

- Arizona State University, USA
- Boston University, USA
- BITS Pilani
- Carnegie Mellon University, USA
- Colorado State University, USA
- Indian Institute of Management, Calcutta
- Indian Institute of Technology, Madras
- International Institute of Information Technology, Bangalore
- North Carolina State University (NCSU), USA
- North Eastern University, Boston, USA
- Rochester Institute of Technology, New York, USA
- Rutgers University, USA
- Polytechnique Montreal, Canada
- Stanford University, USA
- University of Colorado Boulder, USA
- University of Freiburg, Germany
- University of Illinois, Chicago, USA
- University of Maryland College Park, USA
- University of Pennsylvania, USA
- University of Pittsburgh, USA
- University of Texas, Dallas, USA
- University of Utah, USA



# Admissions

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We admit students through two processes:

- a) Through submission of the Admission Committee for Professional Courses (ACPC) Scores of the Government of Gujarat.
- b) Through submission of JEE (Main) Scores. Students can visit [www.ahduni.edu.in](http://www.ahduni.edu.in) to submit the application.

For the Academic Year 2021-22, the intake in the BTech Programme of the School of Engineering and Applied Science, Ahmedabad University is as under:

Programme	50% (ACPC)	50% (JEE)	Total Seats
Chemical Engineering	23	22	45
Computer Science and Engineering	60	60	120
Mechanical Engineering	30	30	60

Students applying for admission on the basis of JEE (Main) rankings can visit [www.ahduni.edu.in](http://www.ahduni.edu.in) to submit the application.

Note: Ahmedabad University has applied for Center of Excellence status. We will get notification or update soon. It might change our admission policy.

## Financial Aid

Ahmedabad University awards Merit Scholarships in recognition of the academic achievements of students, as well as Need-based Scholarships, under our Financial Aid policy. The amount of financial aid provided is determined by the family's annual income and aims to ensure access to quality education to all eligible students.

## Merit Scholarship Scheme

Scholarships are awarded to undergraduate students during admissions. Students eligible under the Financial Aid scheme will be excluded from this scheme. A detailed policy is available in the School's website. For further details, please contact the Office of Undergraduate Admissions and Financial Aid, Ahmedabad University.

## Collaborations and MoU

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Ahmedabad University and Olin College of Engineering, Boston have formed a partnership to promote innovation in education. The partnership includes a faculty exchange programme to integrate Project Based Learning and Design Thinking into our engineering curriculum, offering a new model for education in India. The School also has an active academic and research collaboration with Wright State University, Ohio and University of Valladolid, Spain.



## Dean's Message

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Ahmedabad University is committed to providing an education that prepares students to think critically and creatively to emerge as independent thinkers and compassionate leaders. The School of Engineering and Applied Science (SEAS) has created a curricula that helps students grow intellectually, personally and professionally, so they may thrive and help others thrive. The School's infrastructure is congenial to learning and comprises contemporary facilities, well-equipped laboratories and fast growing library. Our students are also supported and mentored by a robust team of faculty, who are active researchers and engage students in their academic pursuits whenever possible. Additionally, the school facilitates professional and personal development through workshops, conferences and other extracurricular events organized on campus. We are confident that studying at School of Engineering and Applied Science will ensure a sound engineering education and a nuanced approach to real world challenges.



### Sunil Kale

Dean, School of Engineering and Applied Science  
Ahmedabad University

Professor Sunil Kale has a distinguished career spanning three decades with the Department of Mechanical Engineering at the Indian Institute of Technology Delhi from where he retired in 2021. His graduate studies were at Stanford University where he obtained PhD in 1984 and MS in 1981, both in Mechanical Engineering. He earned the BTech degree in Mechanical Engineering from the Indian Institute of Technology Delhi in 1977.

He began his professional career with Tata Consulting Engineers, Bangalore in 1977 where he worked for three years. After graduate studies, he was a Research Assistant Professor with the Mechanical and Aerospace Engineering Department of West Virginia University, Morgantown, USA for four years. He has extensive teaching experience that includes multi-campus courses, online courses via NPTEL and QEEE, and hands-on laboratory and design courses. Courses taught by him include thermodynamics, heat and mass transfer, engineering drawings, power plant technologies, and design, innovation and manufacturing at undergraduate level. He developed and taught postgraduate courses in experimental methods, fire dynamics, and heat transfer applications. He has guided several doctoral students and has been consultant to a variety of industries. To promote hands-on learning on real-life engineering issues, he developed a core mechanical

## Faculty

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One of the most important elements in building an excellent educational Institution is a highly qualified faculty. A majority of our faculty members have PhD degrees from well-known international and national universities, making them our greatest strength. Our faculty members have degrees from the following universities / institutions:

- Clarkson University
- Cornell University
- Gujarat Vidyapith
- Indian Institute of Science
- Indian Institute of Technology
- Institute of Chemical Technology
- Inter-University Centre for Astronomy and Astrophysics (IUCAA)
- National Technical University of Ukraine
- Nirma University
- North Gujarat University
- Queen's University at Kingston
- Rutgers University
- Sardar Patel University
- South Gujarat University
- Stanford University
- University of Cambridge
- University of Oslo and UiT
- University of Pittsburgh
- University of Texas at Arlington
- University of Virginia

laboratory. He was instrumental in setting up a studio for visualization and engineering design.

His research encompasses fluid mechanics, heat transfer, fire dynamics, combustion, and energy efficiency. Water mist use for fire suppression, burning of cloth panels, air flow through open window buses, ceiling fan aerodynamics, and flows through micro-channels, amongst others are some of the topics on which he has published papers.

As a professor at IIT Delhi, he served as Dean of Undergraduate Studies, Head of the Department of Mechanical Engineering, and Coordinator of the Transportation Research and Injury Prevention Programme. He has mentored IIT Mandi and IIT Ropar on various aspects.

As Dean of the School of Engineering and Applied Science at Ahmedabad University, Professor Kale will provide leadership in building a high quality engineering school that is deeply inter-disciplinary in all aspects. He will focus on industry-connected research, design and development, and on technology developments that address societal issues with particular emphasis on environment and sustainability.

## Student Activities

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At Ahmedabad University, students learn not only within their classrooms and laboratories, but also from their community of peers and faculty. The community includes scholars and academics from across India and around the world, which bring with them a wide range of perspectives, experiences, and cultures. This diversity enables and encourages respect, compassion, and empathy – values we take very seriously – among our students.

These activities are largely navigated through our student clubs, which help students to connect and gain exposure to a wide variety of skills and interests: Environment Club, Entrepreneurs Club, Heritage Club, Social Service Forum, Fitness Club, Dance Club, The Management Club, Theater Club, Photography Club (Shutterbugs), Music Club, Food Club, Sports Club, Literary Club, Fine Arts Club, Quiz Club, Coding Club, Magazine Club etc.

In addition to the above clubs, following student chapters are active at the school of engineering and Applied Science:

- Ahmedabad University Student Branch of IEEE
- Student Chapter of American Institute for Chemical Engineers (AIChE).
- Student Chapter of the American Society of Mechanical Engineers (ASME)

### **Ingenium – Annual Technology Festival of Ahmedabad University**

It celebrates the spirit of innovation and engineering solutions hosting a wide array of competitions and workshops. We see active participation from various universities across the state, gathered to compete with the best.

## Student Achievements

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Within a very short span students of School of Engineering and Applied Science have achieved many accolades and laurels. Few of the recent achievements are given below:

**Smit Mandavia**, final year student of BTech (ICT) is recruited by Google for the position of Software Engineer.

**Shrey Shah**, a student of BTech (Mechanical) fourth semester, won first prize in the Article Writing Competition organized by ASME (American Society of Mechanical Engineers) Student Regional Board - Asia Pacific.

**Vishal Saha**, final year student of BTech (ICT) has secured All India Rank 29 in GATE 21 (computer science) examination with a score of 911 out of 1000.

**Part Patel**, student of BTech (Chemical) received an International Student Chapter Leadership Development Award 2020 by the American Institute of Chemical Engineers (AIChE).

**Deven Parikh**, student of BTech (Mechanical) fifth semester, received the first prize in the event 'Blast from the Past' organized by AIChE Ahmedabad University and AIChE NIT Rourkela on July 29, 2020. The event included designing a set of safety guidelines (Industrial Safety Practices) to be implemented in the Bhilai Steel Plant.

**Jainam Shah**, a student of BTech (Mechanical) final year was selected to attend the Student Leadership Training Conference-2020 (SLTC) by American Society of Mechanical Engineers, during October 31 - November 1.

**IEEE Xtreme** is a global challenge: teams compete in a 24 hour time span against each other to solve a set of programming problems. Total 3722 Teams had participated during IEEE Xtreme 14.0. The team of Smit Mandavia, Shaunak Vyas, and Yashraj Kakkad achieved National Rank 4 and International Rank 63 in this contest.

**Ten students were selected as Spark India Fellows at Social Impact Lab - University of Southampton** for the duration June 7 - 25, 2021. They worked as a team with fellows selected from Southampton University, UK.

**Yashraj Kakkad**, student of BTech (ICT) secured a prestigious Summer Internship at Goldman Sachs for 2021



**Ahmedabad  
University**



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