

SHIV NADAR
INSTITUTION OF EMINENCE DEEMED TO BE
UNIVERSITY
DELHI NCR



DEPARTMENT OF **CHEMICAL ENGINEERING**



Our Distinctive History

Shiv Nadar University, established in 2011 by the visionary philanthropist and technology pioneer Mr. Shiv Nadar, is a beacon of multidisciplinary research and academic excellence in India. This dynamic institution comprises four schools offering a range of undergraduate, postgraduate, and doctoral degrees across Engineering, Natural Sciences, Humanities, and Social Sciences, and Management & Entrepreneurship. It has quickly risen to prominence, becoming the youngest university recognised as an Institution of Eminence by the Government of India. This distinction underscores its commitment to achieving global recognition and excellence in higher education. Demonstrating its rapid growth and commitment to quality, the university has consistently been on the 'top 100' overall list of the Government's National Institutional Ranking Framework (NIRF) for the last five years, marking it as a notable institution among its peers.

ANALYTICAL THINKING, CREATIVITY, PROBLEM-SOLVING:

with research programs, internships, entrepreneurial opportunities, and more, our curriculum teaches key skills

PHYSICAL AND EMOTIONAL WELL-BEING:

a vibrant campus life on our 286-acre green campus is designed just for that

ACADEMIC EXCELLENCE:

our faculty come from top institutions in India and the world

JOBS, HIGHER STUDIES OR START-UPS:

we prepare our students for a variety of aspirations



Why
Shiv Nadar
University,
Delhi NCR

Awards and Rankings



Recognized as an
Institution of Eminence

1 of the only 4 private universities in the country to be designated as an Institution of Eminence by the Government of India



National Institutional
Ranking Framework (NIRF)

Youngest university to be ranked among the top 100 of NIRF, 7 years in a row.



QS Asia
Ranking 2024

41 in India; amongst top 36% in Asia.



#1 India's best young
university

(Careers 360, 2023 ranking of private universities)



#7 Top Universities in
India

Careers 360, 2024 ranking of private and public universities)

nature index

#21 Biological Sciences
#28 Chemistry

(Nature Index India 2023 ranking of Indian academic institutions)



Times Higher Education
Impact Rankings

Global Top 200; India Top 5

SDG 6 and SDG 2: Times Higher Impact Ranking 2023, 2024



#3 Top private university in
India

#5 Top private university
for employability

(Indian Institutional Ranking Framework 2024)



Awarded University of
the year 2024
(Emerging category
under 15 years)

10th FICCI Higher Education
Excellence Awards 2024

Why Study Chemical Engineering at Shiv Nadar University?

Choosing to study chemical engineering at Shiv Nadar University is a decision that opens the door to a world of innovative learning and research. Started in 2013, the Department of Chemical Engineering is a hub where the principles of chemistry, physics, and mathematics converge to solve complex problems related to producing and using chemicals, fuels, materials, and pharmaceuticals. The department is committed to providing high-quality education and preparing students for leadership roles in various fields. With a faculty renowned for their research and innovative teaching methods, students will study in an environment that fosters intellectual growth and practical skills. State-of-the-art laboratories and advanced equipment provide hands-on learning experiences, crucial in this field. The rich and diverse curriculum offers courses and research opportunities in process design and control, materials science, nanotechnology, biochemical engineering, and energy production. Graduates from the Department are equipped for leadership roles in industry, academia, and society, with many alums working in top companies and institutions worldwide. This comprehensive approach ensures that students at Shiv Nadar University receive an education that is not only academically rigorous but also highly applicable and respected in the global chemical engineering landscape.



Curriculum

The Department of Chemical Engineering curriculum is thoughtfully structured to provide a comprehensive and versatile educational experience. Spanning eight semesters, the curriculum requires a minimum of 162 credits, encompassing a broad spectrum of subjects, including basic and engineering sciences, core chemical engineering courses, and a diverse range of electives. This structure ensures solid foundational knowledge while allowing for specialisation in areas tailored to the student's interests and career goals.

The department offers a rich selection of elective courses covering various chemical industry domains. These include specialised fields such as petroleum, paint formulation, energy, and biochemical engineering. Beyond these, students can explore advanced topics like computational fluid dynamics, modelling, and simulation. These courses equip students with the skills and knowledge necessary to address complex engineering challenges, making them highly adaptable and proficient in various aspects of chemical engineering.

Recognising the importance of practical experience, the curriculum incorporates minor and major projects in the final year, focusing on the latest research and technological developments. These projects are academic exercises and gateways to hands-on experience and real-world problem-solving. The department encourages students to explore new ideas and approaches, cultivating a culture of innovation and pushing the boundaries of the field.

Preparing for a successful career in chemical engineering is a crucial curriculum focus. To this end, the department offers numerous opportunities for students to engage with industry partners. Through research projects, internships, and collaborations, students gain invaluable practical experience and establish connections in the industry, enhancing their job prospects upon graduation. This combination of theoretical knowledge, practical skills, and industry exposure ensures that graduates from the Department of Chemical Engineering are well-equipped to navigate and excel in the dynamic and challenging world of chemical engineering.

Program Highlights of Chemical Engineering

B. Tech. (Chemical Engineering)

Admission: Annual intake based on SNUSAT or JEE-mains score.

Course Design: All semester courses are structured to enhance students' core competencies in chemical engineering.

Electives: Offers a variety of elective courses as part of specialisations on industry relevant themes such as Modelling and Simulation, and Bioenergy and Biomaterials. Inter-departmental Computational Mechanics specialisation with Civil and Mechanical Engineering.

Minor Degree: Encourages UG students to earn a minor degree in their areas of interest alongside B. Tech. in chemical engineering.

Ph.D. (Chemical Engineering)

Application Periods: Students can apply twice a year, in the Spring and Monsoon semesters.

Admission Criteria: A minimum 7 CGPA is required for application; selection is based on the SNU Ph.D. entrance examination performance.

Funding and Duration: Full-time Ph.D. students receive a tuition fee waiver and a generous monthly stipend. The program typically spans 5 years, with a campus residency requirement.





State-of-the-Art Laboratories

The Department of Chemical Engineering boasts several advanced laboratories, each headed by domain expert faculty members and supported by efficient technical staff. The high teacher-to-student ratio facilitates personalised mentoring.

Undergraduate Laboratories

- Mass Transfer Lab
- Process Dynamic and Control Lab
- Mechanical Operation Lab
- Chemical Reaction Engineering Lab
- Heat Transfer Lab
- Fluid Mechanics Lab
- Computational Lab

Postgraduate-Research Laboratories

- Biomass Conversion Lab
- Microfluidics Lab
- Sustainability and Polymer Lab
- Energy and Environmental Sustainability Lab
- Intensity Lab
- Soft Matter Lab
- Polymer Materials Research Lab
- Complex Fluids Lab
- Computational and Theoretical Soft Matter Lab
- Waste to Wealth Lab

This comprehensive structure of programs and facilities at the university ensures that students in the Department of Chemical Engineering receive a well-rounded, practical, and innovative education, preparing them for various roles in the field of chemical engineering.



Department Highlights

The Department of Chemical Engineering at Shiv Nadar University has made remarkable strides, marked by its vibrant academic community, state-of-the-art facilities, and significant achievements in research and funding.

- The department has a dedicated team of 11 faculty members and a diverse student body of 70 individuals from various academic levels. This combination of expertise and enthusiasm creates a dynamic educational environment.
- A notable accomplishment is the graduation of Ph.D. scholars, underscoring the department's commitment to high-level research and academic excellence.
- Seven advanced undergraduate laboratories are available, each equipped for specific areas of chemical engineering. These labs provide students with hands-on experiences, which is essential for understanding practical applications of their theoretical studies.
- Featuring eight research laboratories, the department is at the forefront of chemical engineering research. These laboratories receive funding from prestigious sources like SERB, Dassault, CST-UP, and Shiv Nadar University, facilitating cutting-edge research and innovation.
- The department has secured significant project funding totalling INR 3 crores. This includes contributions from external sources like FIST, CST-UP, SERB, Dassault, and BPCL for their first major industry project. Additionally, faculty members have successfully received internal grants from the Faculty Grant for Innovative Research (FGIR), further bolstering the department's research capabilities.
- Since 2017, there has been a consistent effort to organise seminars and international workshops. These events serve as platforms for knowledge exchange and keeping up to date with global trends in chemical engineering.
- The department's faculty members have substantially contributed to the field, with over 100 research articles and proceedings published in well-regarded journals and conferences.

Career prospects after Chemical Engineering at Shiv Nadar University

At Shiv Nadar University, our undergraduate and postgraduate degrees in chemical engineering are gateways to various successful career opportunities. Our comprehensive curriculum and practical training prepare students for roles in multiple sectors, ensuring a bright and promising professional future.

Chemical engineering graduates from our university have a wide range of employment opportunities in both the public and private sectors. They are highly sought after in government departments such as the Central Public Works Department (CPWD), the National Highway Authority of India (NHAI), the Border Roads Organisation (BRO), Military Engineer Services (MES), Indian Railways, Ministry of Water Resources, Bureau of Indian Standards (BIS), the Defense Research and Development Organisation (DRDO) and Central Pollution Control Board (CPCB). In addition, they find lucrative positions in Public Sector Undertakings (PSUs) such as the Gas Authority of India Limited (GAIL), Hindustan Aeronautics Limited (HAL), National Thermal Power Corporation (NTPC), and Nuclear Power Corporation of India Limited (NPCIL).

Our alums have successfully entered government jobs and PSUs through competitive examinations such as the Graduate Aptitude Test in Engineering (GATE) and the Union Public Service Commission (UPSC) Engineering Services Examination (ESE). This demonstrates the effectiveness of our education in equipping students with the knowledge and skills to excel in these highly competitive exams.

Furthermore, many of our students have pursued higher education, including Master of Arts (MA) and Doctor of Philosophy (Ph.D.) degrees, at globally renowned universities after completing their Bachelor of Technology (B. Tech.) at Shiv Nadar University. This pursuit of advanced degrees at prestigious institutions in India and abroad is a testament to our commitment to nurturing intellectual growth and academic excellence. Our graduates are undoubtedly on an ascending pathway to progress and are ready to contribute significantly to chemical engineering and beyond.





Alumni Accolades in Chemical Engineering

The Department of Chemical Engineering is proud of its alumni, who have carved out impressive careers in various sectors:

- Many former students now hold prominent positions in industries such as chemical manufacturing, biotechnology, and academia, underscoring the versatility of their education.
- A significant part of our graduates have secured positions in various industries, demonstrating the practical applicability of our programs.
- Furthermore, many have chosen to pursue higher education, reflecting their ongoing commitment to academic excellence
- Some of our graduates have gone on to launch their own start-up ventures, exemplifying the entrepreneurial spirit fostered by the department.
- These achievements are a testament to the high-quality education and the variety of career opportunities available to our graduates.

Department of Chemical Engineering Faculty



Sanjeev Yadav

Head & Professor, Ph.D., Indian Institute of Technology Delhi

Research Areas: Thermochemical conversion of biomass, Wastewater treatment Process optimisation, Solid waste management, Membrane separation, Process planning and Scheduling



Ashish Kumar Thokchom

Assistant Professor, & PG Advisor
Ph.D., Indian Institute of Technology Guwahati

Research Areas: Fluid dynamics, Particle self-assembly, Flow visualisation, Photolithography, Photonic crystals structures, Piezoelectric materials
Flexible electronic devices, Inkjet printing, Micro- and bio-fluidics, Evaporating Drops



Professor Rajendra Prasad Chhabra

Distinguished Professor, Ph.D., Monash University, Melbourne, Australia

Research Areas: Transport Phenomena, Newtonian, Fluid Mechanics, Multiphase Fluids



Swaminath Bharadwaj Gourishankar

Assistant Professor,
Ph.D. Indian Institute of Technology, Madras

Research Areas: Computational modelling of responsive materials, Solvation thermodynamics, Interfacial phenomena, Statistical mechanics



V M Rajesh

Associate Professor, Ph.D. IIT Delhi

Research Areas: Development of distributors for multiphase flow uniformity within parallel micro/milli channels, Strategies for scaling out using micro/milli channels, Synthesis of chemicals and biofuels utilising micro/milli reactors, Computational Fluid Dynamics studies on multiphase flows within micro/milli channels



Sanjay Krishna

Assistant Professor, Ph.D., SVNIT Surat

Research Areas: MD simulations of polymer, Nanomilling, Polymer nanocomposites, Bio packaging



Dhiraj Kumar Garg

Assistant Professor, Ph.D., University of Strasbourg, France

Research Areas: Thermo-fluids and energy systems, Computational Methods, Mathematical modelling, Numerical modelling, Simulation and CFD, Separation Science and Technology, Microfluidics and Nanotechnology Chemical Reaction Engineering and Catalysis, Process Safety and Process Intensification, Process System Engineering, Green Chemistry



Ranjit Kumar

Senior Scientist,
Ph.D., University of Connecticut, USA

Research Areas: Heterogeneous Catalysis, Catalytic Degradation of Water Pollutants, Functionalisation of Metal Oxides, Nanomaterials Synthesis and Application, Nanomaterials for Sensors



Yamini Sudha Sistla

Associate Professor, Ph.D., Indian Institute of Technology, Kanpur

Research Areas: Biopolymer-based edible films and coatings, Refinery gas and liquid separation Processes, CO₂ capture, High entropy alloys, Hydrogen generation using Electrolysis and storage, Molecular modelling, Process modelling and simulation



Karan Gupta

Assistant Professor
Ph.D., Indian Institute of Technology Delhi

Research Areas: Instabilities during flow of complex fluids, Polymer rheology, Polymer processing, Non-Newtonian flows in microchannels



Priyanka Katiyar

Assistant Professor, Ph.D., Indian Institute of Technology, Roorkee

Research Areas: Membrane separation, Supercritical fluid separation, Biomass to Bioenergy, Upgradation of bio-oil, Solid waste management, Industrial pollution abatement, Mathematical modelling, Process optimisation

Staff



MR. VISHNU MISHRA

MBA,
Sr. Administrative Assistant



MRS. GEETANJALI THAKUR

M.Tech
Technical Officer



MR. SUBHAM MISRA

B.Tech,
Sr. Laboratory Assistant



MR. AMIT KUMAR

B.Tech
Laboratory Assistant

Admissions Eligibility

Bachelor of Technology

Program	Selection Criteria	Class 12 th Eligibility
Chemical Engineering	Route 1 - JEE Mains 2024/ 2023	Aggregate of Physics, Chemistry and Maths must be $\geq 65\%$
	Route 2 - SNUSAT Score + APT	
	Route 3 - CUET 2024 Score + Interview	
	Route 4 - Valid College Board SAT Score + Interview	
	Route 5 - Valid ACT Score + Interview	

For detailed information on admission eligibility and degree requirements, prospective students are encouraged to visit the School of Engineering's admission webpage.

Scan Here For More Details:



Contact Details

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Head of the Department

PROF. SANJEEV YADAV

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