GRADUATE PROGRAMS IN
CHEMICAL ENGINEERING

MASTER OF ENGINEERING
DOCTORAL DEGREE
GRADUATE CERTIFICATES

STEVENS.EDU/GRAD-CHEMENG
The Master of Engineering in Chemical Engineering is designed to provide students with a solid foundation in research and development methodologies, with emphasis on advanced applications of modern technologies. As you prepare for a career dedicated to the design, operation and improvement of a wide range of chemical processes vital to our society, our renowned faculty will guide you in advancing your knowledge of chemical engineering concepts.

Our students gain the ability to manage, develop and assess alternative chemical engineering systems by critically evaluating feasibility, costs, safety, regulatory issues and societal impact. Areas of focus include energy, biomedicine and nanotechnology, with noteworthy research underway in vital areas such as alternative energy systems, renewable transportation fuels, chemical reactions on catalytic nanoparticles and the production of “green” diesel fuel.

As a graduate student, you will work in cross-functional teams, immersed in a vibrant intellectual setting, with access to state-of-the-art research laboratories. As you participate in technology innovation through the development of chemical processes and products, you will practice teamwork and develop the leadership skills required for an exciting career in a profession brimming with opportunity.
CAREER OPPORTUNITIES

- Research Scientist
- Process Engineer
- Lead Engineer
- Research Fellow
- Postdoctoral Researcher
- Assistant Professor
- Product Engineer
- Research Engineer
- Staff Scientist
- R&D Engineer

TOP HIRING ORGANIZATIONS

- Dow Corning
- BASF
- Ingredion Inc.
- International Flavors & Fragrances Inc.
- University of Southern California
- University of Kentucky
- Albemarle Corporation
- Scientific Design
- CB&I
- Integrated Analytical Laboratories
The Master of Engineering requires 30 graduate credits in an approved plan of study. Six to nine credits can be obtained by performing research in the form of a master’s thesis. The curriculum must include the following core courses:

CORE COURSES INCLUDE

Chemical Engineering Concentration
(ten courses)
- Applied Mathematics for Engineers and Scientists II
- Chemical Engineering Thermodynamics
- Theory of Transport Processes
- Reactor Design

Polymer Engineering Concentration
(ten courses)
- Theory of Transport Processes
- Fundamentals of Polymer Science
- Polymer Rheology
- Processing of Polymers for Biomedical Applications

Plus six courses or thesis work in combination with three to four courses.

ELECTIVE COURSES INCLUDE

- Process Safety Management
- Biofuels Engineering and Technology
- Design of Controls Systems
- Stagewise Operations
- Colloids and Interfacial Phenomena

- Fundamentals of Polymer Science
- Polymer Rheology
- Processing of Polymers for Biomedical Applications

DOCTORAL PROGRAM IN CHEMICAL ENGINEERING

The chemical engineering doctoral program at Stevens is built on the fundamental areas of chemical engineering science with rich offerings in advanced coursework and independent research. Our doctoral students can take advantage of opportunities with materials science faculty for synergistic and collaborative research as they prepare for the many challenges facing modern academic researchers and engineering professionals. Many find positions in research and development, design, manufacturing, marketing and management. Our doctoral graduates are ready to step into chemical engineering roles in a variety of industries, among them energy, petrochemicals, pharmaceuticals, food, agricultural products, polymers and plastics, materials, semiconductor processing, waste treatment and environmental monitoring and improvement.
Stevens also offers graduate certificates to serve the professional interests of our students. Each graduate certificate program is a self-contained and highly focused collection of courses carrying nine or more graduate credits. In most cases, the courses may be used toward the master’s degree.

- **Pharmaceutical Manufacturing Practices**
  - The graduate certificate in pharmaceutical manufacturing practices is administered by the mechanical engineering department, where most of the courses offered under that program are also cross-listed with chemical engineering and can be taken as elective courses under the chemical engineering program.

- **Photonics**
- **Microelectronics**
- **Microdevices and Microsystems**

**GRADUATE CERTIFICATE PROGRAMS**

Stevens graduate students work in state-of-the-art labs investigating solutions for the evolving needs of society. Our research addresses microelectronic “chip” circuits used in portable electronic systems, fuel cells for creating clean electrical energy from hydrogen and other chemicals, artificial organs for biomedical application and more. Students may work in many of the following labs:

- **Highly Filled Materials Institute**
  - Focuses on materials that are difficult to process due to their high solid concentrations (the volume fraction of solid particles approaches their maximum packing fraction).

- **New Jersey Center for Microchemical Systems Lab**
  - Provides a nationally unique research frontier for exploring microreactor and microfluidic technologies with industry and government collaborators.

- **Fiber Optics and Nanophotonics Lab**
  - Research covers several frontier areas ranging from nanotechnology-enabled conventional optical fiber and photonic crystal fiber for multi-parameter sensing to plasmonic noble metal nanoparticles for field-enhanced applications.

- **Microfluidics and Self-Assembly**
  - Research interests include self-assembly, nanomaterials, biomaterials and microfluidics. The lab uses an array of state-of-the-art tools such as soft-lithography, inkjet printing and layer-by-layer self-assembly to create new materials and devices.

- **Laboratory for Multiscale Imaging**
  - A vibrant research facility that promotes learning and research activities by offering training classes and seminars within an open and multiuser laboratory space.
WHO SHOULD APPLY

We welcome applicants who have a passion for chemical engineering and a drive to innovate. An undergraduate degree in chemical engineering is required for admission to the master’s program. Students with an undergraduate degree in chemistry can apply, provided that they take a set of undergraduate chemical engineering courses (typically five) for no credit to serve as bridge courses prior to taking graduate courses in chemical engineering.

Application requirements include:
- Bachelor’s degree, with a minimum GPA of 3.0, from an accredited institution
- Official college transcripts
- Two letters of recommendation
- Resume (optional)
- Statement of purpose (Ph.D. program only)
- TOEFL or IELTS scores (for international students)
- GRE scores

ABOUT STEVENS INSTITUTE OF TECHNOLOGY

Stevens Institute of Technology, The Innovation University®, is a premier, private research university situated in Hoboken, N.J. overlooking the Manhattan skyline. Founded in 1870, technological innovation has been the hallmark and legacy of Stevens’ education and research programs for more than 145 years. Within the university’s three schools and one college, 6,600 undergraduate and graduate students collaborate with more than 290 full-time faculty members in an interdisciplinary, student-centric, entrepreneurial environment to advance the frontiers of science and leverage technology to confront global challenges. Stevens is home to three national research centers of excellence, as well as joint research programs focused on critical industries such as healthcare, energy, finance, defense, maritime security, STEM education and coastal sustainability.

ABOUT SCHAEFER SCHOOL OF ENGINEERING & SCIENCE

The Charles V. Schaefer, Jr. School of Engineering & Science (SES) is dedicated to preparing the next generation of technology leaders by offering a multi-disciplinary, design-based education. With eight departments and an intensive curriculum for undergraduates, master’s and doctoral candidates, SES is dedicated to supporting hands-on learning, research and technology transfer that provides each student with invaluable, experiential knowledge. SES is globally recognized for its world-class faculty and leading-edge research facilities.