GRADUATE PROGRAMS IN
MATERIALS SCIENCE
AND ENGINEERING

MASTER OF ENGINEERING
MASTER OF SCIENCE
DOCTORAL DEGREE
GRADUATE CERTIFICATES

STEVENS.EDU/GRAD-MSE
Stevens Institute of Technology offers both a Master of Engineering and a Master of Science in Materials Science and Engineering. Each program immerses students in a dynamic learning environment focused on scholarly work and innovative research. Our renowned faculty grounds you in the fundamentals of materials science and leads you in the study of important current topics in energy, biomedicine and nanotechnology.

Materials scientists play major roles in nearly all industrial activities and have spurred technological advances that have shaped the modern world. As a graduate student, you will work alongside professors in state-of-the-art laboratories to grapple with solutions to issues that are vitally important to society, industry and government. Our courses also address sustainability issues related to finite resources and the impact of materials utilization and disposal on the environment.

For those who wish to pursue a specialty, we offer concentrations in nanotechnology, microelectronics and photonics and soft materials.
CAREER OPPORTUNITIES

• Research Scientist
• Lead Engineer
• Research Fellow
• Postdoctoral Researcher
• Assistant Professor
• Product Engineer
• Research Engineer
• Staff Scientist
• R&D Engineer
• Applications Specialist

TOP HIRING ORGANIZATIONS

• Applied Materials
• Rudolph Technologies
• Avon
• MIT
• Cornell
• NETL-DOE
• Naval Air Weapons Station China Lake
• Bechtel
• ULVAC Technologies, Inc.
• Oxford Nanopore Technologies
The Master of Engineering and Master of Science each require a total of ten courses, four of which must be from the core, with the balance in electives and research. Candidates may choose either a special topic or thesis research with any member of the faculty in the department to satisfy the research requirement. A minimum GPA of 3.0 is required for the master’s degree.

**CORE COURSES INCLUDE**
(Any three of the following courses)

- Thermodynamics of Materials
- Structure and Diffraction
- Principles of Inorganic Materials
- Soft Matter Physics

Plus:
- Innovation and Entrepreneurship in Materials Science and Engineering

**ELECTIVE COURSES INCLUDE**

- Mechanical Behavior of Solids
- Solar Energy: Fundamentals
- Composite Materials
- Techniques of Surface and Nanostructure Characterization
- Solar Energy: System Design
- Solid State Electronics for Engineering II
- Reliability and Failure of Solid State Devices
- Microfabrication Techniques
- Thermodynamics and Reaction Kinetics of Solids
- Polymer Properties and Structure

**Microelectronics and Photonics Science and Technology - Interdisciplinary**
The master’s degree is also available in the concentration of Microelectronics and Photonics Science and Technology (MPST), an interdisciplinary area of study jointly administered with several other departments in Stevens’ Charles V. Schaefer, Jr., School of Engineering & Science.

**DOCTORAL PROGRAM IN MATERIALS SCIENCE AND ENGINEERING**

For those who desire a career dedicated to research in industry or academia, a doctorate from Stevens is a distinct advantage. With our program’s emphasis on advanced technology, our graduates are highly sought by many industries, including the chemical, petrochemical, plastics, electrochemical, industrial ceramics, semiconductor, biochemical/biomedical and environmental sciences industries. A doctorate will help you develop the skills and capacity to conduct original research in such fields as biomedicine, electronic device processing, ceramics, plastics and other high-performance materials. This program can lead to numerous career opportunities as you use unique skills to find innovative solutions to today’s pressing challenges.
GRADUATE CERTIFICATE PROGRAMS

Stevens also offers graduate certificate programs. In most cases, courses may be used toward a master’s degree. Each graduate certificate program is a self-contained, highly focused collection of courses carrying nine or more graduate credits. The selection of courses may be adapted to a student’s professional interests.

- **Photonics**
- **Microelectronics**
- **Microdevices and Microsystems**
- **Pharmaceutical Manufacturing Practices**

RESEARCH

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 materials science engineering and a drive to innovate. An undergraduate degree in materials science engineering or a related field is required for admission to the master’s program.

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.