

THE COOPER UNION  
FOR THE ADVANCEMENT  
OF SCIENCE AND ART



ALBERT NERKEN SCHOOL OF ENGINEERING

# Master of Engineering

# Introduction

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The Cooper Union was established in 1859 by inventor, industrialist, and social reformer Peter Cooper. The Cooper Union is internationally recognized for its academic rigor, hands-on research, and project-oriented curriculum. Translating thinking into making is an ethos echoed throughout the campus comprised of engineering, architecture, and art students.

The Albert Nerken School of Engineering offers a Master of Engineering degree with concentrations in chemical, civil, electrical, and mechanical engineering. The classes are small and intimate, the culture collaborative, and the faculty are leaders in both industry and academia.

# New York City Campus

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Our New York location allows for access to top engineers, scientists, specialists in all fields, and government agencies, resulting in a wide range of research and mentorship opportunities for Cooper students. Many of these professionals are alumni and offer insights into contemporary problems and social issues confronting modern engineers.







# Concentrations

## CHEMICAL ENGINEERING

Graduate students in the Department of Chemical Engineering focus on courses that advance fundamental principles—transport phenomena, thermodynamics, and chemical reaction engineering. Students develop their creative abilities through project work and are encouraged to explore fields such as biomedical engineering, biochemistry, pharmaceuticals and bioengineering, nanotechnology, environmental engineering, and sustainability.

In addition to advanced courses in chemistry and chemical engineering, graduate students in the thesis program carry out research under the guidance of full-time faculty members from the Chemistry Department or Department of Chemical Engineering.

Specializations: process simulation, sustainability, nanomaterials, particle technology and fluidization, pharmaceutical engineering, pollution prevention and mitigation, process optimization and economics, and green engineering.

Employers: ExxonMobil, Infineum, Merck, Phillips, PepsiCo, CDI, and Consolidated Edison.



## CIVIL ENGINEERING

Graduate students in the Department of Civil Engineering become equipped with the theoretical and practical knowledge needed to solve many problems facing both our built and natural environments. Coursework grounded in the principles of mathematics, structural mechanics, and computer applications prepares students for careers in urban planning, structural engineering, construction management, and infrastructure rehabilitation.

Augmenting the core curriculum, graduate students can specialize in areas such as civil engineering management. Students and faculty often collaborate on projects related to sustainability, alternative energy sources, and the mitigation of damage caused by natural and manufactured disasters.

Specializations: structural and geotechnical engineering, water resources and environmental engineering.

Employers: Thornton Tomasetti, Arup, Mueser Rutledge, Weidlinger Associates, Skanska, Gilbane, Port Authority of New York and New Jersey, New York City Department of Design and Construction.







## **ELECTRICAL ENGINEERING**

Developing their capacities for team and individual work, graduate students in the Department of Electrical Engineering work with practicing professionals, faculty, and peers on various cutting-edge problems. Students are provided with tools to address engineering problems based on a strong theoretical foundation and scientific computation. Students work with faculty exploring a diverse array of subjects, including audio and image processing, electronics design, machine learning and artificial intelligence, parallel and distributed processing, RF engineering and wireless communications, and sustainable engineering.

Specializations: electronic systems and materials, signal processing and communications, and computer engineering.

Employers: Alcatel-Lucent, Bloomberg LP, Goldman Sachs, Google, The Hackerati, ITT Exelis, LGS Innovations, Maxentric Technologies, Mini-Circuits, Nvidia, Spotify, Southwest Research Institute, and SRI International.

## MECHANICAL ENGINEERING

Through course projects, research, and consulting opportunities, graduate students in the Department of Mechanical Engineering explore design innovations, robotics, mechatronics, energy and sustainability, nanotechnology, dynamic systems and control, biomedical engineering, and innovative computational methods.

Courses balance analytical rigor and creative design, thereby preparing graduates for a variety of careers. Graduates are valued for their strong, project-based design skills and analytical abilities. They have successful careers as entrepreneurs and innovators in the aerospace, automotive, biomedical, energy, and construction industries. They often pursue doctoral studies in a range of mechanical engineering fields.

Specializations: computer-aided design and engineering, computational fluid dynamics, combustion, refrigeration, robotics, biomedical systems, respiratory biomechanics, automotive systems, mechatronics, thermoelectric power generation, energy-efficient buildings, and vibrations and acoustics.

Employers: Arup, Boeing, Bloomberg LP, Consolidated Edison, Credit Suisse, Exxon, General Dynamics, General Motors, Google, Honda, IBM, Merck, NASA, Raytheon, Southwest Research Institute, SpaceX, Stryker, and United States Patent and Trademark Office.





# Life After Cooper

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Our graduates go on to complete doctoral degrees at top-tier institutions like Massachusetts Institute of Technology, Stanford University, Harvard University, Columbia University, Yale University, and Georgia Institute of Technology; and medical degrees at New York University Grossman School of Medicine and Icahn School of Medicine at Mount Sinai. They are also actively recruited by *Fortune* 500 companies and groundbreaking startups, pursuing careers in traditional engineering industries like aerospace, high-tech, automotive, petroleum, construction, and manufacturing, as well as nontraditional sectors, including law and finance. Across industries and careers, Cooper Union alumni are renowned for working to solve societal issues through responsible technological innovation.

Alumni include a Nobel Prize winner in physics and 33 Fulbright scholars, among many other accomplished researchers and professionals.

# Program

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The Master of Engineering program includes 30 credit hours beyond the baccalaureate. Students may complete the requirements in one of two ways:

- Thesis option, requiring 24 credits of coursework and a 6-credit thesis; or
- Non-thesis option, requiring 30 credits of coursework along with a special project requirement.

Photos: Ryan Brenizier, Kathryn Gamble

# Applying

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- Complete [Master of Engineering Application](#)
- Bachelor of Engineering Degree accredited by the Accreditation Board for Engineering and Technology (ABET)
- Official copies of all postsecondary transcripts
- Official TOEFL, IELTS, or DET scores (if bachelor's degree was taught in a language other than English)
- 2 teacher recommendations, including at least one from a STEM (Science, Technology, Engineering, and Math) course instructor
- Optional: official GRE scores
- \$75 application fee or fee waiver (if applicable)
- Resume
- Application: Due by **January 15**

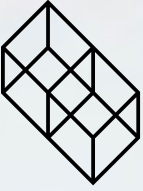
# Affordability

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Honoring Peter Cooper's belief that education should be accessible to all, our mission is to ensure no student is deterred from attending The Cooper Union based on their financial circumstances. The Cooper Union Albert Nerken School of Engineering Master of Engineering program offers more value per credit than programs at peer institutions by up to 40%. Visit our [Afford webpage](#) to learn more.







**The Cooper Union**  
for the Advancement  
of Science and Art

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[cooper.edu/admissions](https://cooper.edu/admissions)



**Take a self-guided  
virtual tour.**