Join the Next Generation of Engineering Leaders
Innovate. Experience. Lead.

The Graduate School of Engineering at Northeastern University is top-ranked, highly selective, and an R1 research institution. Combining rigorous, interdisciplinary academics with experiential learning and convergent research, we prepare the next generation of engineering leaders for the complex and ever-evolving challenges of the world to benefit society.

Our innovative approach to experiential education, including our flagship cooperative education program, and focus on multidisciplinary research has made us one of the top engineering schools in the world.

No. 1 in Cooperative Education/Internships
U.S. News and World Report 2020

Top 31 Engineering Graduate Schools
U.S. News and World Report 2021

No. 10 in Graduate Entrepreneurship
Princeton Review 2020

No. 4 in Career Services
Princeton Review 2020
Personalize Your Path

Whether your goal is to advance in your career, transition to a new field, or conduct transformative research, Northeastern’s graduate engineering programs can put you on your path to success. The College offers more than 45 Master of Science, Doctor of Philosophy and Graduate Certificates across five engineering departments, in traditional disciplines and applied areas of study. With flexible concentrations, tracks, and a variety of electives, you can personalize your experience to meet your individual goals.

Over 15 graduate certificates—in technology, business, and leadership—give you additional ability to customize your education. A certificate program can complement your graduate degree program or you can apply the course credits toward a Northeastern engineering master’s degree in the future.

Flexibility to Meet Your Needs
As a master’s student you can select from coursework, project-based, and thesis tracks. To pursue a Doctor of Philosophy degree, you can enter the program directly with a Bachelor of Science degree, or begin in advanced standing with a Master of Science degree. Degrees are available on a full-time or part-time basis, and courses can be taken on campus, online, and in hybrid formats (varies by program).

Graduate Students Take Positions at Top Organizations
Through an innovative curriculum you will be equipped with a solid foundation for technical and leadership positions in industry organizations, government laboratories, research laboratories, and educational institutions.

RESEARCH
National Institutes of Health
Boston Children’s Hospital
Brigham and Women’s Hospital
Draper Laboratory
NASA Jet Propulsion Lab
MIT Lincoln Lab
Merck & Co.
Shire
National Labs such as Argonne, Brookhaven, Oak Ridge, Pacific Northwest

ACADEMIA
University of California (Berkeley, Los Angeles, San Francisco)
Massachusetts Institute of Technology
Johns Hopkins University
Boston University
Rensselaer Polytechnic Institute
Harvard Medical School
University of Maryland
University of Wisconsin
University of Toronto
Baylor College of Medicine

INDUSTRY
Located in Innovation Hubs

Northeastern University’s College of Engineering in Boston, and with select engineering graduate degree programs in Seattle and in Silicon Valley, is part of a global university system for flexible learning and collaborative research. Northeastern’s growing university network includes locations in Boston; Charlotte, North Carolina; London; Portland, Maine; San Francisco; Seattle; Silicon Valley; Toronto; and Vancouver.

DAVID MEDINA, PHD’20
CHEMICAL ENGINEERING

David Medina, a chemical engineering doctoral student, made a pioneering discovery while working in Professor Thomas Webster’s nanomedicine lab. He is using bacteria to produce nanoparticles that are particularly effective at killing whatever type of cell was used to create them, including strains of bacteria that are resistant to traditional antibiotics, as well as tumor cells. The research could provide a way to combat the rising number of antibiotic-resistant infections and also design nanoparticle-based cancer treatments.
Interdisciplinary Research

Northeastern is a top-tier research institution, rated with very high research activity by the prestigious Carnegie Classification of Higher Education. As such, you will have the opportunity to participate in many levels of interdisciplinary research working alongside highly accomplished faculty, in state-of-the-art facilities. You will also benefit from our collaborative partnerships, which span industry, government, research laboratories, hospitals, and academic institutions—locally and globally.

The College has 17 multidisciplinary research centers and university-wide institutes. Research addresses global challenges in health, sustainability, and security, as well as in enabling areas of focus, such as robotics and the internet of things.

A myriad of research opportunities are available. From regional poster competitions, travel scholarships, research assistantships, presenting at conferences, and being published in professional journals, you gain a rich education and real-world experience in your area of interest.

$67M EXTERNAL RESEARCH AWARDS (2019)

17 multidisciplinary research centers and institutes, funding by 8 federal agencies
Experience-Powered Learning

EXPERIENCE IS THE HEART OF A NORTHEASTERN EDUCATION.

Cooperative education. Our cooperative education program is world-renowned, integrating classroom study with professional work experience. With co-op, you have the opportunity to gain up to eight months of industry or research employment in your chosen field as part of the academic curriculum—giving you a competitive-edge upon graduation.

Find this and more graduate experiences on our YouTube channel

bit.ly/nucoegrad

2101

EMPLOYER PARTNERS
(2017–'19)

Nearly 1,000 graduate student placements in 2019

NISHITA SIKKA
TELECOMMUNICATION NETWORKS

Nishita did her co-op at Volvo Group North American headquarters, gaining invaluable experience in automation, web development, and network infrastructure.

Students bring research to competitions and poster sessions

Aida Lopez Ruiz, MS in chemical engineering, won the award of People’s Choice and Top Poster for her poster titled “Silver Palladium and Silver Platinum Anti-Microbial and Anti-Cancer Agents” at the CaNCURE Poster Session, a partnership between Northeastern and Dana-Farber/Harvard Cancer Center, funded by the National Cancer Institute.

“I ended up choosing Northeastern because the program is well established, the location of Boston is a hub for the industry and the co-op program is really good for me as an international student because it helps me gain work experience in the U.S.”

Vineel Kondiboyina, MS Bioengineering
Experiential PhD. As a doctoral student, you can participate in Northeastern’s Experiential PhD program. It provides internships, fellowships, practicums, a leadership program, and special initiatives. You will benefit from challenging assignments inside partner organizations in industry, government, academia, and the non-profit sector. Additionally, the program offers the unique opportunity to conduct research outside of your primary research group.

Entrepreneurship. Northeastern was selected as a Top Graduate School for Entrepreneurship, ranking No. 10, by the Princeton Review in 2020. With a supportive multidisciplinary research community and entrepreneurial ecosystem across the university, several of our engineering faculty and students have launched spin-out companies from the research conducted in Northeastern labs.

Soroush Kamrava, mechanical engineering doctoral student, is researching ways to incorporate origami ideas with metamaterials to create objects that can collapse, absorb energy, and then spring back into place.

Chemical Engineering Associate Professor Edgar Goluch founded QSM Diagnostics to develop into a usable product what he discovered in his lab. The company’s sensor technology is able to diagnose bacterial infections in animals quickly, resulting in faster treatments.
Engaged and Welcoming Community

With Northeastern, you join a diverse, vibrant, and welcoming community of talented students from around the world. The College of Engineering has over 50 student organizations in addition to university-wide activities and resources. There is a PhD Network, and opportunities to participate in research, numerous events and lectures, as well as regional and national competitions, to name a few.

Financial Assistance

As a full-time graduate student, you will be considered for various types of highly competitive funding awards based on merit, as well as prestigious fellowships. Alumni with a bachelor’s degree from Northeastern are eligible for a Double Husky scholarship. The scholarship includes a 25% tuition waiver and an accelerated application process if enrolled in a full-time or part-time engineering master’s degree or graduate certificate program.

Admissions

There are multiple terms of entry. The graduate application process is entirely electronic. Some applicants are exempt from the GRE and/or TOEFL/IELTS (tests of English proficiency) requirements. Application fee waivers are offered periodically during special events and promotions.

Undergraduate degree requirement: Generally, applicants are required to hold (or be pursuing) an undergraduate engineering degree in a closely related major to their graduate program of interest. Some programs consider applicants with an undergraduate degree in science, mathematics, technology, computer science, and non-STEM fields.

View admissions details at coe.northeastern.edu/admissions
Accelerated Master’s Degrees

The College of Engineering offers a PlusOne program for students enrolled in an engineering BS program at Northeastern who would like to earn a master’s degree in a condensed time period. Undergraduate students accepted into the PlusOne program use some of their undergraduate courses to fulfill master’s degree requirements. This enables them to earn a master’s degree typically in one year after completing their bachelor’s degree.

Academic Programs

MASTER OF SCIENCE

Bioengineering
Chemical Engineering
Civil Engineering
Cyber-Physical Systems
Data Analytics Engineering
Data Architecture & Management
Data Science
Electrical & Computer Engineering
Electrical & Computer Engineering Leadership
Energy Systems*
Energy Systems Academic Link*–
(for non-STEM undergraduate majors)
Engineering Management*
Engineering and Public Policy
Environmental Engineering
Human Factors
Industrial Engineering
Information Systems
Mechanical Engineering
Operations Research
Robotics
Software Engineering Systems
Sustainable Building Systems
Telecommunication Networks

DOCTOR OF PHILOSOPHY

Bioengineering
Chemical Engineering
Civil Engineering
Computer Engineering
Cybersecurity
Electrical Engineering
Industrial Engineering
Interdisciplinary Engineering
Mechanical Engineering

GRADUATE CERTIFICATES

Blockchain and Smart Contract Engineering
Broadband Wireless Systems
Computer Systems Engineering
Data Analytics Engineering
Energy Systems*
Energy Systems Management*
Engineering Economic Decision Making*
Engineering Management*
Gordon Engineering Leadership
IP Telephony Systems
Lean Six Sigma*
Process Safety Engineering
Renewable Energy*
Supply Chain Engineering Management*
Sustainable Energy Systems
Technology Systems Management

* Programs have online completion options
DEPARTMENT OF BIOENGINEERING

Bioengineering is a rapidly growing sector of the engineering profession. The aging of the U.S. population and the nationwide focus on health issues is carving a central role for the field. Bioengineers are advancing understanding of physiological processes in health and disease, and improving methods and devices for diagnosis and treatment.

Bioengineering faculty have established highly interdisciplinary collaborations with faculty members from the College of Engineering, Pharmaceutical Sciences, Biology, Chemistry, Physical Therapy, and more. Located directly adjacent to the world-renowned Longwood Medical Area in Boston, Northeastern provides an excellent opportunity for you to combine engineering, medicine, and biology.

Location: Boston
bioe.northeastern.edu

146 GRADUATE STUDENTS
22 TENURED/TENURE-TRACK FACULTY
$14M EXTERNAL RESEARCH AWARDS (2017–’19)

Master of Science. The Bioengineering MS program is designed for students with different backgrounds, including students with a BS within the STEM fields; students who would like to strengthen their academic credentials or portfolio prior to applying to medical school; and professionals within biotech industry looking to strengthen their technical background, redirect their specific expertise, and broaden future employment opportunities.

As a student, you may also participate in Northeastern’s cooperative education program, gaining up to eight months of professional work experience as part of the academic curriculum.

Concentrations
- Cell and Tissue Engineering
- Biomechanics
- Biomedical Devices

Doctor of Philosophy. The PhD in Bioengineering program is designed to take advantage of Northeastern’s considerable strengths in multiple areas across both traditional and bioengineering programs. You have the opportunity to develop a course of study tailored to your interests or take advantage of one of four core research areas. If you have a BS degree and are interested in doctoral studies, you may apply directly to the PhD program; or pursue the MS degree first and then apply to the PhD subsequently.

Research Areas
- Imaging, Instrumentation, and Signal Processing
- Biomechanics, Biotransport, and MechanoBiology
- Molecular, Cell, and Tissue Engineering
- Computational and Systems Biology

"Boston is the city if you want to make it in biotechnology or anything bioengineering related, and the fact that Northeastern has so many connections here is really invaluable—with Northeastern you’re pretty much set.”

Millicent Gabriel, MS Bioengineering
Chemical engineering provides the opportunity to tackle pressing challenges facing our society and our planet in areas such as biomedicine, energy, security, and sustainability. The graduate program combines cutting-edge research and coursework, providing you with an in-depth understanding of the fundamental principles of chemical engineering and an expertise in modern topics in the field through select elective courses. You may also participate in Northeastern’s cooperative education program, gaining up to eight months of professional work experience in your area of interest as part of the academic curriculum.

Master of Science. The MS in Chemical Engineering is normally pursued by students with a BS degree in chemical engineering or closely allied fields. Students wishing to pursue the master’s degree but with undergraduate educational backgrounds other than chemical engineering may be required to complete supplementary undergraduate coursework. The non-thesis MS degree is offered as either a full-time or part-time program.

Doctor of Philosophy. The PhD degree is offered as a full-time program. If you have a BS degree and are interested in doctoral studies, you may apply directly to the PhD program; or pursue the MS degree first and then apply to the PhD subsequently.

Research. As a graduate student, you are able to select thesis topics from a diverse range of faculty research interests, including two strategic research areas:

- Advanced Materials
- Biological Engineering

With a premier location in downtown Boston, research in the department leverages the wealth of collaborations with neighboring universities, hospitals, medical centers, and industry. Learning about ongoing research topics is easily done by contacting individual faculty members, their websites, and from graduate student seminars. Graduate student seminars, where students present the results of their research, are held on a regular basis and provide an interactive forum for learning and exchanging ideas.

Northeastern’s chemical engineering graduate program provides the best of both worlds: a rigorous curriculum coupled with cutting-edge research opportunities. In the heart of Boston, collaboration plays a key role in our success, both with academia and industry.”

Zach Rogers, PhD Chemical Engineering

Location: Boston
che.northeastern.edu
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

The coming decades will represent a crucial time as climate change, urbanization, and technological progress profoundly reshape the ways in which we live and work. From the opportunities of renewable energy and artificial intelligence to the threats of rising sea levels and vulnerable urban infrastructure, Northeastern is educating students to serve as leaders in an evolving and complex world.

With the department’s strategic focus on urban engineering, you will explore the unique ways in which the built and natural environments interact, preparing you for the great challenges of our time. Utilizing the latest advances in simulation, smart sensing, data and network science, and urban informatics, faculty are conducting critical research in civil infrastructure security, environmental health, and sustainable resource engineering.

Master of Science. With four degree options and five concentrations, MS degrees prepare full- and part-time students for advanced careers in all facets of civil and environmental engineering. You may also participate in Northeastern’s cooperative education program, gaining up to eight months of professional work experience as part of the academic curriculum.

MS Degrees
- Civil Engineering
- Environmental Engineering
- Engineering and Public Policy
- Sustainable Building Systems

Civil Engineering Concentrations
- Construction Management
- Geotechnical/Geoenvironmental Engineering
- Structures
- Transportation
- Water, Environmental, and Coastal Systems

Doctor of Philosophy. The Civil Engineering PhD program is flexible and may be adapted to any subject area in civil and environmental engineering. The Graduate School of Engineering also offers an interdisciplinary PhD degree involving substantial work in two or more academic departments or disciplines.

Research Centers
- The Puerto Rico Testsite for Exploring Contamination Threats (PROTECT)
- Versatile Onboard Traffic Embedded Roaming Sensors (VOTERS)
- Center for Research on Early Childhood Exposure and Development (CRECE)

My program taught me to take a statistical and broader perspective, rather than having a microscopic view on engineering problems. That was one of the major takeaways for me.”

Udit Bhatia, PhD Interdisciplinary Engineering

Location: Boston
cee.northeastern.edu

242 GRADUATE STUDENTS
30 TENURED/TENURE-TRACK FACULTY
$24M EXTERNAL RESEARCH AWARDS (2017–’19)
As an Electrical and Computer Engineering Master of Science and Doctor of Philosophy student, you will be engaged in innovative research areas. Research ranges from the design, analysis and optimization of high-performance computing systems, to the fabrication of cutting-edge microelectromechanical actuators, to new research frontiers on smart power grids, metamaterials, biomedical signal processing, and communication systems. Flexibility to specialize in an area of interest is provided through a range of programs, concentrations, and research areas.

As part of the program, you will receive deep fundamental and practical knowledge in the various disciplines of electrical and computer engineering through a strong curriculum and research opportunities. The department educates the next generation of highly skilled engineers and researchers with necessary skills to address the future needs of industry, government, and humanity.

Additionally, you may participate in Northeastern’s cooperative education program, gaining up to eight months of professional work experience as part of the academic curriculum.

**Location:** Boston

**ece.northeastern.edu**
DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING

The Department of Mechanical and Industrial Engineering offers comprehensive research and educational programs for both Master of Science (MS) and Doctor of Philosophy (PhD) students. As a student, you will work with world-renowned faculty to achieve research experience and your career goals. Northeastern’s cooperative education (co-op) program offers you a unique opportunity to integrate your academic knowledge with industry experience. Providing up to eight months of full-time work experience, co-op can build your resume and give you a competitive edge upon graduation. Recent co-op partners have included: Tesla, Bose, Mathworks, Wayfair and Dana Farber Cancer Institute.

Master of Science. MS degree programs are offered in both mechanical engineering with concentrations, and in industrial engineering. MS degree programs in targeted fields such as energy systems, engineering management, human factors, operations research, data analytics engineering, and robotics are also offered. These extensive programs and concentrations allow for the selection of a degree that meets a wide variety of personal and professional goals.

Students accepted into any of the MS programs in the department can choose from one of three options: coursework only, project, or thesis. Students may pursue any program either on a full-time or part-time basis; however, certain restrictions may apply. Additionally, the MS in Energy Systems and MS in Engineering Management degree programs have online options to meet the needs of working professionals.

Doctor of Philosophy. Cutting-edge and vibrant doctoral programs include PhDs in industrial engineering, mechanical engineering, and an interdisciplinary PhD (offered by the Graduate School of Engineering).

Research Areas
- Biomechanics and Soft Matters—Solids and Fluids
- Energy Systems
- Healthcare Systems
- Impact Mechanics
- Mechatronics and Systems — Control, Robotics, and Human Machines
- Multi-phase Structured Matter
- Multifunctional Composites
- Resilient Systems
- Smart and Sustainable Manufacturing

Research Centers
- Center for High Rate Nanomanufacturing
- Healthcare Systems Engineering Institute

Location: Boston; Data Analytics Engineering also in Seattle; Energy Systems – online options; Engineering Management – online options

mie.northeastern.edu
MULTIDISCIPLINARY GRADUATE ENGINEERING DEPARTMENT

Designed to prepare you for the workforce, the Multidisciplinary Master of Science (MS) programs integrate engineering solutions from the fields of technology and business. They develop technical and engineering skills through advanced coursework and complex technical projects in the areas of software, data, and network systems. Each program focuses on the application of knowledge and skills to business and industrial settings. Faculty hail from industry, and programs continually evolve to align with the latest technologies and market needs.

The flexible degree programs put software at the forefront of the engineering paradigm to address the socio-technical needs of contemporary society. You will be prepared to go beyond simple technical engineering to become a leader in delivering systems that are safe, secure, reliable, and help solve the world’s grand challenges.

Focus Areas

- Blockchain and Smart Contracts
- Business Intelligence and Data Analytics
- Cloud Computing
- Cyber-Security Engineering
- Data Architecture
- Data Center Networking
- Digital Business
- Embedded Systems
- Engineering of Big Data Systems
- Full-Stack Software Engineering
- Internet of Things
- Machine Learning and Data Sciences Engineering
- Mobile Computing
- Software Defined Networks
- User Experience Design

Student Groups

- Husky Systers Code – for women in STEM to share, learn, grow, and network
- AI Skunkworks – focused on artificial intelligence, deep learning, machine learning, computational biology, and game development
- NU IoT Connect – platform for all students interested in the world of connected devices

coe.northeastern.edu/mgen
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Graduate School of Engineering
130 Snell Engineering Center
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Boston, MA 02115, USA

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With over 180 tenured/tenure-track faculty, 17 multidisciplinary research centers and institutes, and funding by eight federal agencies, the College of Engineering is a leader in experiential education and interdisciplinary research, with a focus on discovering solutions to global challenges to benefit society.

Northeastern University

Founded in 1898, Northeastern is a global research university and the recognized leader in experience-powered lifelong learning. Our world-renowned experiential approach empowers our students, faculty, alumni, and partners to create impact far beyond the confines of discipline, degree, and campus.

Our locations—in Boston; Charlotte, North Carolina; London; Portland, Maine; San Francisco; Seattle; Silicon Valley; Toronto; and Vancouver—are nodes in our growing global university system. Through this network, we expand opportunities for flexible, student-centered learning and collaborative, solutions-focused research.

Northeastern’s comprehensive array of undergraduate and graduate programs—in on-campus, online, and hybrid formats—lead to degrees through the doctorate in nine colleges and schools. Among these, we offer more than 140 multidisciplinary majors and degrees designed to prepare students for purposeful lives and careers.

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