



Queen's  
UNIVERSITY

ENGINEERING

# Why Queen's Engineering?

## A Common First Year + Guaranteed Discipline Choice

Our common core program gives you a full year of engineering fundamentals, while you evaluate which discipline you want to specialize in. At the end of first year, choose what program you want to enter – no caps, no quotas.

## Two Leading Direct-Entry Programs

Our common core programs are complemented by two direct entry programs: Electrical and Computer Engineering Innovation, and Mechatronics and Robotics Engineering.

## Outstanding Community, Great Student Experience

From your first day on campus Queen's Engineering champions cooperation, support, and balance in your studies. Explore a range of clubs and design teams, a vibrant student government, and incredible extracurriculars. Supportive faculty, dedicated staff and a community of peers and mentors make Queen's Engineering unique.

## Engineering for Everyone

Engineering thrives on diversity: embracing viewpoints, cultures, and perspectives from all angles to create opportunities and solve challenges. Queen's Engineering is working towards a more diverse and inclusive community — to make our learning and working environment better, and to advance the practice of engineering.



→ Find out more at <https://qeng.one/E4E>.



### INDIGENOUS FUTURES IN ENGINEERING at Queen's University

Indigenous Futures in Engineering (InEng) serves students through culturally relevant student success programs, including liaison with industries particularly interested in the development of Indigenous engineers through summer employment, internships, and permanent positions.

[indigenous.engineering.queensu.ca](https://indigenous.engineering.queensu.ca)

# Your Degree, Your Way

## Internships

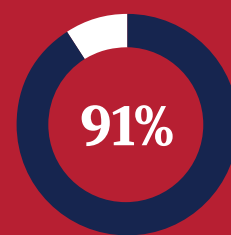
Queen's Engineering maximizes choice with an internship model that lets students choose their internships. Through the Queen's Undergraduate Internship Program, students gain 12–16 month accredited work experience. Internships are paid, meaningful work experience in real engineering environments where you learn about current advances, practices and technologies.

→ Learn more at <https://qeng.one/internship>.

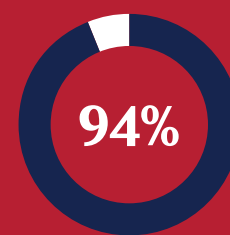
## Dual Degrees and Certificates

You can work toward two degrees with many Queen's Arts & Science programs, and add to your degree with a number of certificates in business (offered by the Smith School of Business), law (from Queen's Faculty of Law), entrepreneurship & innovation, and data analytics.

# By the Numbers



degree completion rate



employment rate two years after graduation



## 12–16 Months:

length of a Queen's Engineering paid internship



## 82% increase

in internships in the last 2 years



## 100% of internship

employers report satisfaction with Queen's interns



## 81% of interns

report discussing opportunities for full-time employment with their company

# Programs

## Engineering Programs

**OUAC Code: QE**

Our engineering programs are second to none, thanks to leading-edge specializations, world-renowned faculty, and state of the art facilities and labs.

### Chemical Engineering

Learn to design, control, and optimize energy-efficient, sustainable, and economically viable processes to generate products such as energy, materials, food, pharmaceuticals, and biomedical devices. Queen's prepares engineers to work on any scale, from mass manufacturing to micro-scale chemical reactions, with specializations in chemical process engineering and biochemical engineering.

**Streams:** *biochemical, biomedical, bioenvironmental, and chemical process engineering.*

**Careers:** *biotechnology, process industries, food and agricultural science, oil, gas and alternative energy, environmental sustainability and remediation, biomedical engineering, pulp and paper, pharmaceutical production, polymer and polymer products manufacturing, specialty chemicals and mineral processing.*

### Civil Engineering

Learn how to design, plan, and build the structures and systems of our built world while protecting the natural environment to shape society and the world we live in. Civil engineering addresses the present challenges in environmental, geotechnical, hydrotechnical, and structural engineering including those arising from climate change.

**Streams:** *environmental, structural, geotechnical, and hydrotechnical.*

**Careers:** *environmental assessment, water supply, construction, industrial design, architecture, urban and regional planning.*

### Computer Engineering

Computer engineers build connections between the virtual and physical worlds. In this program, you will learn to develop and advance the information and communication technology that is changing the way people live and work.

**Streams:** *software engineering, hardware, mechatronics, artificial intelligence, and machine learning.*

**Careers:** *aerospace software, ambient/artificial intelligence, autonomous systems, biomedical engineering, computer architecture, computer vision and optical processing, cybersecurity, game development, integrated circuit design, medical informatics, mechatronics, wearable technology.*

### Electrical Engineering

Electrical Engineering is a broad discipline that spans from the physical world to the purely information-based world. In this program, you will build on a base of applied mathematics and physics and learn to use the laws of physics that govern electrical systems to design new products and services.

**Streams:** *biomedical engineering, communications and signal processing, microelectronics and photonics, mechatronics, energy and power electronics, robotics, and control.*

**Careers:** *autonomous robotics, ambient intelligence, aviation and aerospace, biotechnology, component design, consumer electronics, digital systems fibre and laser electro-optics, game development/design, green power, sensory systems, semiconductor design, security systems, wearable technology.*

### Mechanical & Materials Engineering

Mechanical engineers are needed wherever there are machines or devices - including the human body. Their work covers every stage of design, manufacturing, testing, operation, and research. Queen's provides the skills needed to excel in the broad field of mechanical engineering, with a general option as well as specializations in biomechanical or materials engineering.

**Streams:** *aerospace, mechatronics, biomechanical, manufacturing, materials, and energy and fluids systems.*

**Careers:** *Aviation and aircraft management, biomechanics, biomedical technology, industrial engineering, materials engineering, metallurgical engineering, nuclear engineering, product design, renewable energy and sustainability, robotics, sound engineering, structural analyst.*

### Mining Engineering

Explore the minerals industry and related environmental and technological fields. You'll study a wide range of disciplines involved in locating, extracting, refining, and disposing of mineral and metal products and by-products - leading to a variety of dynamic career options in a truly global field.

**Streams:** *mine-mechanical, mineral processing and environmental, and mining.*

**Careers:** *banking and venture capital, executive (management through c-suite), consulting, environmental management, equipment designer, mine engineer, mineral exploration, software developer, metallurgist, project engineering, renewable resources, waste management.*



## Engineering Science Programs

Students with both a scientist's passion for discovery and an engineer's drive to design and create find a perfect fit in the Engineering Science specializations. The programs are demanding, but the payoff is a wide and varied choice of career options.

### Engineering Chemistry

The only program of its kind in North America, Engineering Chemistry graduates are accredited as both chartered chemists and as professional engineers. Get a strong foundation in two disciplines, covering organic and inorganic chemistry, reactivity, structural determination and molecular materials and focusing on the pillars of chemical diagnostics, alternative energy and process synthesis.

**Streams:** *chemical diagnostics, alternative energy, and process synthesis.*

**Careers:** *agricultural sciences, alternative energy, biomedical engineering, chemical/process engineering, environmental engineering, food science and technology, forensic science, fuels and petrochemicals, mineral processing, pharmaceuticals, polymer/rubber/plastic technology.*

### Engineering Physics

Engineering physics combines the practical skills of engineering with the deep knowledge of a scientist, applying analytical and lateral thinking to modern engineering challenges. Courses in quantum mechanics, laser optics and nanotechnology will help prepare you for an engineering career at the leading edge of technology. You will acquire advanced problem-solving and instrumentation skills, and will be able to apply superior mathematical, analytical and abstract-thinking ability to modern engineering challenges.

**Streams:** *mechanical, computing, electrical, and materials.*

**Careers:** *aerospace, automotive, astrophysics, atmospheric science, biophysics, computer engineering, energy (nuclear, solar, wind, etc.), environmental management, financial modelling, forensic science, nanotechnology, nuclear engineering, semiconductors and electronic, software engineering.*

### Geological Engineering

Geological engineers combine core engineering fundamentals with a broad slate of geological knowledge, ranging from geology to geotechnical engineering. You will study physics, chemistry, applied mathematics and natural processes such as earthquakes, volcanoes, plate tectonics and mountain formation. You will also acquire field, laboratory, and computer simulation skills and training in state-of-the-art geological investigation and engineering analysis tools.

**Streams:** *geo-environmental engineering, engineering geophysics, geotechnical engineering, rock engineering and mineral/energy exploration.*

**Careers:** *environmental engineering, geophysics, groundwater protection and management, mining geomechanics and environmental sustainability, natural hazard mitigation, tunnel engineering, hydro-power development, mineral resource exploration and sustainable extraction, urban infrastructure engineering, hazardous waste management, geothermal energy.*

### Mathematics & Engineering

The only Engineering program in North America primarily offered by a mathematics department, Mathematics and Engineering blends engineering with advanced mathematics and provides a rigorous treatment of engineering concepts and ideas. You will learn to analyze and solve engineering problems requiring sophisticated mathematical skills, such as those involving modern communications, control, and mechatronic systems, as well as emerging areas such as artificial intelligence and data science.

**Streams:** *applied mechanics, computing and communication, systems and robotics.*

**Careers:** *aerospace, artificial intelligence, biomedical engineering, computer engineering, computer vision and image processing, control systems, cryptography, data analysis and data mining, fibre and laser electro-optics, financial analysis, mechatronics, satellite communications, software design, information technology.*

## Direct Entry Programs

OUAC code: QEM

### Mechatronics & Robotics Engineering

Push the boundaries of intelligent autonomous systems and world-changing technologies, from mobile robotics to control systems to artificial intelligence. This program brings global experts and researchers to the classroom to work with students on hands-on projects in robotics and mechatronics with real-world applications. Shape the program to your specific interests in your final year, specializing in automation, robotics, biomedical engineering, or intelligent systems.

**Careers:** aerospace, autonomous robotics, artificial and ambient intelligence, biotechnology, sensory systems, wearable technology.

OUAC code: QEC

### Electrical & Computer Engineering: Innovation

Get all the benefits of Queen's leading Electrical and Computer Engineering programs, with a specialized curriculum starting in your first year that prioritizes entrepreneurship and business skills. All of the robust engineering education of our ECE program is paired with team-based learning, networking, and guidance and coaching on business models and innovation development.

**Careers:** entrepreneurship, business development, software engineering, hardware engineering, business, cybersecurity, ambient/artificial intelligence, cryptography, c-suite management, game development/design, wearable technology.

## AN INNOVATIVE BRIDGING PROGRAM

Students get exclusive access to our QEng Prep program: a free online set of modules in math, physics, chemistry and programming. Test and upgrade your skills before your first year to hit the ground running.

➔ Find out more at <https://qeng.one/prep>.



See All Programs Online

➔ [engineering.queensu.ca/programs/undergraduate](https://engineering.queensu.ca/programs/undergraduate)





## 10-Point Student Success Model

### Advisors

Whether you are a prospective, upper-year, or international student, we have over 30 specialized and dedicated advisors to help you navigate your time at Queen's.

### Accommodation Coordinator

The Accommodations Coordinator supports students with academic accommodations.

### Study Skills Workshops

Enhance the skills of students to help them achieve their academic potential.

### Early Intervention

First-year students who are identified as having academic difficulties are offered support and resources early on.

### Wellness Skills Workshops

Sessions that facilitate wellness and stress management for students.

### Free Choice of Discipline

Relieves the stress of competing with peers for a spot in their first-choice program.

### Douglas Helpdesk

Extra after-hours help sessions for first-year students led by upper-year students.

### Personal Counsellors

Meets with students to discuss the stresses they may be facing and suggests coping mechanisms to ensure they stay on track.

### EngBounceBack

A program where upper-year student facilitators individually help students develop learning strategies to ensure their academic success.

### Extended Program

A safety net that allows students to retake failed fall semester courses early in winter term. This allows them to get back on track before entering second year.

## Contact Us

### FACULTY OF ENGINEERING AND APPLIED SCIENCE

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613-533-2055

### FINANCIAL AID

[queensu.ca/registrar/financial-aid](http://queensu.ca/registrar/financial-aid)

[awards@queensu.ca](mailto:awards@queensu.ca)

613-533-2216

### RESIDENCE ADMISSION

[residences.housing.queensu.ca](http://residences.housing.queensu.ca)

[reshouse@queensu.ca](mailto:reshouse@queensu.ca)


613-533-2550


### UNDERGRADUATE ADMISSION

[queensu.ca/admission](http://queensu.ca/admission)

[admission@queensu.ca](mailto:admission@queensu.ca)

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[engineering.queensu.ca](http://engineering.queensu.ca)