Get to know

MECHANICAL ENGINEERING

The domain of mechanical engineers is truly vast because they are needed wherever machines are, and at every stage of design, manufacturing, construction and research. In this program you will study basic engineering courses as well as practical courses in machine design, robotics and manufacturing methods. Hands-on design is integral to this program. You may be involved in designing artificial joints, or even a Formula race car, depending on your specialization. If you choose the Materials option, you'll study the exciting developments in materials and nanotechnology.

“Students are encouraged to participate in national design competitions in order to broaden their educational experience including the solar design team, the Formula racing car, the Mini Baja all terrain vehicle and the Aerodesign cargo aircraft, and others.”

Queen’s ADMISSIONS

Students apply to Queen’s Engineering (QE) through the OUAC (Ontario University Application Centre) website. Secondary School prerequisites include five 4U and 4M courses, one of which must be English 4U. Calculus and Vectors 4U, Chemistry 4U, and Physics 4U are all required along with one of Advanced Functions 4U, Biology 4U, Data Management 4U, Computer Science 4U, Earth and Space Science 4U. A final grade of 70% must be obtained in English 4U. Applicants outside of Ontario may have additional requirements.

A Common START

Queen’s is unique in offering a common First Year along with an open discipline choice. When you do choose your program, you don’t have to worry about caps or quotas. Provided you pass all of your First Year courses, you are guaranteed a place in your engineering program of choice. Queen’s also offers Section 900, a special extended program for students struggling with First Year courses. Take things at a slower pace and recover in time for Second Year.

Degree OPTIONS

Bachelor of Applied Science in Engineering
Bachelor of Applied Science in Engineering with Professional Internship
Option in General / Materials / Biomechanical Engineering

Course HIGHLIGHTS

Mechanical Engineering students have the opportunity to take a wide range of technical courses to help prepare them for the many possible career destinations available. Such courses include:

• Biomechanical Product Development
• Turbomachinery
• Mechatronics Engineering
• Airplane Aerodynamics
• Musculoskeletal Biomechanics
• Nano-Structured Materials

Acquire Skills. Gain Experience. Go Global. That is a degree from Queen’s.
**Mechanical Engineering**

**MAJOR MAP**

**BACHELOR OF APPLIED SCIENCE | BACHELOR OF APPLIED SCIENCE WITH PROFESSIONAL INTERNSHIP**

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<th>1ST YEAR</th>
<th>2ND YEAR</th>
<th>3RD YEAR</th>
<th>4TH OR FINAL YEAR</th>
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<tr>
<td>GET THE COURSES YOU NEED</td>
<td>Courses include: Statics &amp; Solid Mechanics, Differential Equations, Manufacturing Methods, Thermodynamics, Materials, Electric Circuits &amp; Machines, Numerical Methods, Measurement for Mechatronics, Kinematics &amp; Dynamics and Fluid Mechanics. You will take the second EPDS course – EPDS 200. Students decide to enroll into one of the following options: ME1 – General, ME2 – Materials, or ME3 – Biomechanical.</td>
<td>Courses include: Engineering Economics, Solid Mechanics, Dynamics &amp; Vibration, Machine Design, Heat Transfer, Automatic Controls, and Engineering Data Analysis. Your other courses will depend on your option and elective choice!</td>
<td>Courses include either Team Project: Conceive &amp; Design or Multi-disciplinary Industry Engineering Design Project. ME3 students will also take the Team Project: Implement &amp; Operate course. Choose another 6 or 7 technical courses depending on your option, three complementary studies courses, and you are set to graduate!</td>
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<td>GET RELEVANT EXPERIENCE</td>
<td>Get involved with the Engineering Society (ENGSOC), or with Queen’s Mechanical and Materials Engineering Executive (MechExec). Start or continue volunteering with organizations such as the Commerce &amp; Engineering Environmental Conference (CEEC).</td>
<td>Do some targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen’s Connects Career Network.</td>
<td>Consider joining professional associations like Professional Engineers Ontario (PEO), Canadian Society of Mechanical Engineers (CSME), Society of Manufacturing Engineers (SME). Join groups on LinkedIn reflecting specific careers or topics of interest in Mechanical Engineering.</td>
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<td>GET CONNECTED WITH THE COMMUNITY</td>
<td>Volunteer on or off-campus with different community organizations, such as Let’s Talk Science (LTS) and Engineers without Borders (EWB). Join professional associations like Professional Engineers Ontario (PEO), Canadian Society of Mechanical Engineers (CSME), Society of Manufacturing Engineers (SME) as a student member – it’s often free.</td>
<td>Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills.</td>
<td>Investigate requirements for full-time jobs or other opportunities related to careers of interest. Assess what experience you’re lacking and fill in gaps with volunteering, clubs, or internships – check out Career Services workshops for help.</td>
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<tr>
<td>GET THINKING GLOBALLY</td>
<td>Speak to a QUC advisor or get involved in their programs, events and training opportunities. Prepare for work or studies in a multi-cultural environment by taking the QUIC and Four Directions Aboriginal Student Centre’s Training Certificate, and research possible immigration regulations.</td>
<td>Is an exchange in your future? Start thinking about where you would like to study abroad.</td>
<td>International students interested in staying in Canada can speak with an International Student Advisor.</td>
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<tr>
<td>GET READY FOR LIFE AFTER GRADUATION</td>
<td>Grappling with program decisions? Go to the Orientation Evenings held by different Engineering departments and attend the various Career Fairs during the year. At Career Services.</td>
<td>Explore different careers of interest by reading books in the Career Services Career Advising and Resource Area, such as Career Opportunities in Engineering. For more information check out Career Counselling by finding and connecting with alumni on LinkedIn. Attend the Engineering and Technology Fair held by Career Services.</td>
<td>Apply to jobs or future education, or make plans for other adventures. Get help from Career Services with job searching, resumes, interviews, grad school applications, or other decisions.</td>
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**Employability skills**

Your time at Queen’s will give you valuable skills to boost your employability, including:

- Proficiency in mathematics and quantitative analysis
- Innovation and implementation skills embodied in the CDIO paradigm: Conceive, Develop, Implement and Operate
- Time and resource management
- Excellent technical writing and communication skills
- Engineering design skills
- Ability to apply science fundamentals to practical problems of mechanical engineering
- Experience and capability in employing various information sources for solving engineering problems
- Ability to work independently and in a team on a project

**Where could I go after graduation?**

Your degree could take you in lots of interesting directions including:

- Aviation and aircraft management
- Biomechanics
- Biomedical technology
- Biomechanics
- Aviation and aircraft management
- Business administration and management
- Industrial engineering
- Information technology
- Materials engineering
- Metallurgical engineering
- Nuclear engineering
- Occupational health and safety
- Product design
- Renewable resources and sustainability
- Research analyst
- Robotics
- Sound engineering
- Structural analysts

Taking time to explore career options, build experience, and network can help you have a smoother transition to the world of work after graduation. Please note: some careers may require additional training or education.

*Some careers may require additional training. Careers listed here are only suggestions.*

Visit careers.queensu.ca/majormaps for the online version with links!
How to use this map

Use the 5 rows of the map to explore possibilities and plan for success in the five overlapping areas of career and academics. The map just offers suggestions – you don’t have to do it all! To make your own custom map, use the My Major Map tool.

Get started thinking about the future now – where do you want to go after your degree? Having tentative goals (like careers or grad school) while working through your degree can help with short-term decisions about courses and experiences, but also help you keep motivated for success.

Get the help you need

Queen’s provides you with a broad range of support services from your first point of contact with the university through to graduation. At Queen’s, you are never alone. We have many offices dedicated to helping you learn, think and do.

Ranging from help with academics and careers, to physical, emotional, or spiritual resources – our welcoming living and learning environment offers the programs and services you need to be successful, both academically and personally, and Queen’s wants you to succeed! Check out the Student Affairs website for available resources.

Why study in Kingston?

For 175 years, our community has been more than a collection of bright minds – Queen’s has attracted students with an ambitious spirit. Queen’s has the highest retention rates, the highest graduation rates, and one of the highest employment rates among recent graduates. We are a research intensive university focused on the undergraduate experience. The BBC has identified us as one of the GREATEST UNIVERSITY TOWNS in the world – and is often awarded the safest city in Canada. We are a university city at the core; just a quick drive to Toronto, Montreal, Ottawa and even New York. A university with more clubs per capita than any other university in Canada, and a city with more restaurants per capita than any other city in North America – you will have the experience of a lifetime at Queen’s – and graduate with a degree that is globally recognized among the best.

For more information, contact quip@queensu.ca or visit the Program Website.