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 Science in Engineering
Bachelor of 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
1ST YEAR
Queen's Engineering first year is common - courses include: Physics, Chemistry, Calculus, Algebra, Graphics, Computing and Earth Systems Engineering.
Also APSC100, the entry level course in our Engineering Design and Practice Sequence (EDPS), focusing on problem solving, experimentation principles and finishing off with a team-based engineering project.
Discipline selection will take place in February!

GET RELEVANT EXPERIENCE
Join teams or clubs on campus such as the Queen's Project on International Development or the First Robotics Competition.
See the AMS Clubs Directory or the Queen's Get Involved page for more ideas.

GET CONNECTED WITH THE COMMUNITY
Volunteer on or off-campus with different community organizations, such as Let's Talk Science (LTS) and Engineers without Borders (EWB).

GET THINKING GLOBALLY
Speak to a QUIC advisor or get involved in their programs, events and training opportunities.
Prepare for work or studies in a multi-cultural environment by taking QUIC's Intercultural Competency Certificate and research possible immigration regulations.

GET READY FOR LIFE AFTER GRADUATION
Grappling with program decisions? Go to the Orientation Evenings held by different Engineering departments and attend the various Career Fairs during the year.
Get some help deciding by visiting Career Services.

2ND YEAR
You will take the second EDPS course – APSC 200
Students decide to enroll into one of the following options: ME1 - General, ME2 - Materials, or ME3 - Biomechanical

GET RELEVANT EXPERIENCE
Look into summer jobs by talking to the dept. or Career Services about work through SWIP or NSERC. Popular project teams include Aero Design, Autonomous Sailboat, Formula SAE, Baja SAE and Eco-Marathon team. Take more responsibility by within different clubs or extracurriculars. Consider entrepreneurial opportunities at programs like the Queen's Innovation Connector Summer Initiative.

GET CONNECTED WITH THE COMMUNITY
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 & Engineering Environmental Conference (CEEC).

GET THINKING GLOBALLY
Is an exchange in your future? Start thinking about where you would like to study abroad.

GET READY FOR LIFE AFTER GRADUATION
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 Cruising or by finding and connecting with alumni on LinkedIn.
Attend the Engineering and Technology Fair held by Career Services.

3RD YEAR
Your other 4 courses will depend on your option!

GET RELEVANT EXPERIENCE
Stay during the summer as an assistant to a faculty member or apply for external research opportunities. Apply for NSERC: USRA positions in the department of Mechanical and Materials Engineering.
Consider applying to do a 12-16 month QUIP internship between your third and fourth year.

GET CONNECTED WITH THE COMMUNITY
Do some targeted networking with alumni working in careers of interest by joining the LinkedIn group: Queen's Connects Career Network.

GET THINKING GLOBALLY
Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills.

GET READY FOR LIFE AFTER GRADUATION
Start focusing on areas of interest. Research education requirements for careers of interest. If needed, prepare to take any required tests (like the LSAT or GMAT) and get help thinking about grad school from Career Services.

4TH OR FINAL YEAR
Courses include either Team Project: Concept & Design or Multi-disciplinary Industry Engineering Design Project. ME3 students will also take the Team Project: Implement & Operate course.
Choose another 6 or 7 technical courses depending on your option, three complementary studies courses, and you are set to graduate!

GET RELEVANT EXPERIENCE
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.

GET CONNECTED WITH THE COMMUNITY
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.

GET THINKING GLOBALLY
International students interested in staying in Canada can speak with an International Student Advisor.

GET READY FOR LIFE AFTER GRADUATION
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.

Where could I go after graduation?
Acoustics
Aviation and aircraft management
Automotive
Biomechanics
Biomedical technology
Business administration and management
Communications
Construction
Economics
Education
Electrical services
Environmental sustainability
Industrial engineering
Information technology
International development
Manufacturing
Materials engineering
Market data analysis
Medicine
Metallurgical engineering
Nuclear engineering
Occupational health and safety
Product design
Renewable resources and sustainability
Research analyst
Robotics
Sound engineering
Structural analyst
Transportation
Quality assurance
Ventilation

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Visit careers.queensu.ca/majormaps for the online version with links!

* This map is intended to provide suggestions for activities and careers, but everyones abilities, experiences, and constraints are different. Build your own Major Map using our online My Major Map tool.
Succeed in the workplace

What employers want

The Canadian Council of Chief Executives list the top 6 skills sought by employers as:

1. People skills
2. Communication skills
3. Problem-solving skills
4. Analytical abilities
5. Leadership skills
6. Industry-specific knowledge

Take the time to think about the unique skills you have developed at Queen’s, starting with the skills list here for ideas. Explaining your strengths with compelling examples will be important for applications to employers and further education. For help, check out Career Services workshops.

What can I learn studying MECHANICAL ENGINEERING?

Proficiency in mathematics and quantitative analysis

- Become a balanced engineer by developing a set of 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

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.