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.

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 40s 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

"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."

In May, September, or January

Positions are part- and full-time

Work terms are 12-16 months long

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

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 an innovative university focused on the undergraduate experience. The BCC 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.

Mechanical Engineering

MAJOR MAP

For More Information, contact qui.p@queensu.ca or visit the Program Website.

Why QUIP?

- 2nd or 3rd Year Students
- Minimum GPA of 1.9
- Gain a year of career-related work experience.
- Build network connections.
- Receive support from Queen’s staff in job search and during internship.

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**Mechanical Engineering MAJOR MAP**

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

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### 1ST YEAR

- **Courses Needed**
  - 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!

### 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.

### 3RD YEAR

  - Your other courses will depend on your option and elective choice!

### 4TH OR FINAL YEAR

- **Courses Include**: Either Team Project: Conceive & 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!

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### Relevant Experience

- **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.

### Connect with the Community

- **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). 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.
  - 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).
  - Do some targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen’s Connects Career Network.

### Thinking Globally

- **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 the QUIC and Four Directions Aborginal Student Centre's Training Certificate, and research possible immigration regulations.

### Life After Graduation

- **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.
  - Explore the 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 finding and connecting with alumni on LinkedIn.
  - Attend the Engineering and Technology Fair held by Career Services.

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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
  - Information technology
  - Materials engineering
  - Metallurgical engineering
  - Nuclear engineering
  - Occupational health and safety
  - Product design
  - Renewable resources and sustainability
  - Research analyst
  - Robotics
  - Sound engineering
  - Structural analyst

**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.**

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*This map is intended to provide suggestions for activities and careers, but everyone's abilities, experiences, and constraints are different. Build your own Major Map using our online My Major Map tool.*

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