Computer Engineering

Get to know COMPUTER ENGINEERING

The information and communication technology of our knowledge-based society places computer engineers at the hub of a computing revolution that is constantly changing the way people live and work. In this program, you will study circuits, electronics, digital systems, microprocessors, computer architecture, data structures, algorithms, computer networks, operating systems, and software specification and development. You may choose to specialize in computer hardware, computer systems, software engineering, artificial intelligence or mechatronics streams of specialization, and complement your core knowledge with advanced topics in electrical and computer engineering.

Degree OPTIONS

Bachelor of Applied Science in Engineering
Bachelor of Applied Science in Engineering with Professional Internship
Specialization in Computer Hardware / Computer Systems / Software Engineering / Mechatronics

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, Advanced Functions 4U, Chemistry 4U, and Physics 4U are all required. A final competitive minimum grade of 80% must be obtained for all courses. 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.

Course HIGHLIGHTS

Computer 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:

- Computer Vision
- Artificial Intelligence
- Machine Learning
- Advanced User Interface Design
- Advanced Database Systems
- Software Requirements
- Computer System Architecture

“"Our undergraduate faculty-to-student ratio is among the highest in the country and translates to a very direct and personal educational experience for our students.""
2022-2023

Computer Engineering MAJOR MAP

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

**1ST YEAR**

**GET THE COURSES YOU NEED**

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 Engweek Committee, QCBT, and the Solar Design Team (QSDT).

Apply for first year positions such in ENGSOC 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 Science Quest, and Mostly Autonomous Sailboat Team (MAST).

**GET THINKING GLOALLY**

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 Intercultural Awareness Training Certificate hosted by QUIC and FDISC, 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**

**Courses include:**


You will take the second EDPS course – APSC200, plus one Complementary Studies course. CEi students take Introduction to Business for Entrepreneurs, plus an additional Complementary Studies Course.

**3RD YEAR**

**Courses include:**


You will also take Engineering D need to take 2 Complementa take two prede Studies course

**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.
CONSIDER A 12-16 MONTH QUIP INTERNSHIP

3RD YEAR

• Microprocessor Interfacing

Iso take the Electrical and Computer Design Course. You will also take 2 Technical Electives, plus one centenary Studies course. CEi students predetermined Complementary courses.

During the summer as an assistant to member or apply for an external research opportunity.

applying for the combined BASc/gram, if you meet the minimum ents.

applying to do a 12-16 month QUIP

Consider targeted networking with alumni in careers of interest by joining the group Queen's Connects Career

Consider joining professional associations like the Institute of Electrical and Electronics Engineers and Professional Engineers Ontario.

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.

Join groups on LinkedIn reflecting specific careers or topics of interest in Electrical Engineering.

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

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.

All Computer Engineering students follow up their ELEC 390 ECE Design course with the Computer Engineering Project course (ELEC 498).

You will also need to choose approximately 7-8 Technical Electives (totaling 22.5 units), plus one Complementary Studies course. You may also take a Research Project course (ELEC 497).

For CEi, the Complementary Studies course is Pitching and Launching your Venture.

5TH OR FINAL YEAR

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.

Consider joining professional associations like the Institute of Electrical and Electronics Engineers and Professional Engineers Ontario.

Join groups on LinkedIn reflecting specific careers or topics of interest in Electrical Engineering.

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

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.

Employability skills

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

• Understanding of computer systems, computer hardware, electronics, and software engineering
• Knowledge of research techniques and methods of data analysis
• Analytical and logical thinking
• Problem solving
• Conduct scientific research and summarize findings
• Proficiency in mathematics – solve mathematical problems and analyze quantitative information
• Oral and written communication – explain technical information to others in reports and presentations
• Work independently and in a team on a project
• Time and resource management

Where could I go after graduation?

• Aerospace software
• Ambient intelligence
• AI software
• Autonomous control systems
• Banking Automation Systems
• Biomedical Engineering
• Computer architecture
• Computer vision and optical processing
• Cyber security
• Database engineering
• Game development
• Integrated circuit design
• Medical informatics
• Mechatronics
• Natural language processing
• Wearable technology

Taking time to explore career options, build experience, and network can help you have a smoother transition to the world of work after graduation.
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. Queen's wants you to succeed! Check out the Student Affairs website for available resources.

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

Why study in Kingston?
For over 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 Kingston as one of the GREATEST UNIVERSITY TOWNS in the world – and it is often identified as the safest city in Canada. It is a university city at the core; just a quick drive to Toronto, Montreal, Ottawa and even New York. At a university with more clubs per capita than any other university in Canada, and in 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.