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, 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, 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.

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

ECEI - INNOVATION STREAM

Consider Queen’s Electrical & Computer Innovation Stream, focused on developing entrepreneurial skills, alongside the in-depth, world-class technical education that is the hallmark of Queen’s Engineering. Students apply directly from OUAC with admission requirements for ECEI being the same as QE. With admission limited to 50 students, you will receive an enriched curriculum that builds on Engineering’s common first year, participate in team-based learning that focuses on product development and prototype demonstration, and network with like-minded students and present your unique ideas. If you pass all of your first year courses you are guaranteed a place in 2nd year in either the Electrical Engineering Innovation (EIEI) stream or Computer Engineering Innovation (CEI) stream.

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.
**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!

### 2ND YEAR

- **GET Relevant EXPERIENCE**
  - Join teams or clubs on campus such as Engweek Committee, QCET, and the Solar Design Team (QSDT).
  - Volunteer on or off campus with different community organizations, such as Queen’s Game Developers Club, Science Quest, and Mostly Autonomous Sailboat Team (MAST).

- **GET CONNECTED WITH THE COMMUNITY**
  - Apply for first year positions such as ENGSOC Computer Manager. See the AMS Clubs Directory or the Queen’s Get Involved page for more ideas.
  - Speak to a QUIC advisor or get involved in their programs, events and training opportunities.

- **GET THINKING GLOBALLY**
  - Grappling with program decisions? Go to the Orientation Evenings held by different Engineering departments and attend the various Career Fairs during the year.
  - Explore different careers of interest by reading books in the Career Services Career Advising and Resource Area, such as Vault Guide to Technology Careers, talking to people whose jobs interest you, or finding engineering alumni on LinkedIn.

### 3RD YEAR

- **GET THE COURSES YOU NEED**
  - You will take the second EDPS course – APSC200, plus one Complementary Studies course. For CEI students, the Complementary Studies course required is Introduction to Business for Entrepreneurs.

### 4TH OR FINAL YEAR

- **GET Relevant EXPERIENCE**
  - Look into summer jobs related to computer engineering by talking to the department or Career Services about work through SWEP or NSERC.
  - Take more responsibility within different clubs or extracurriculars. Consider entrepreneurial opportunities at programs like the Queen’s Innovation Connector Summer Initiative (QICSI).

- **GET CONNECTED WITH THE COMMUNITY**
  - Join the Queen’s Electrical and Computer Engineering Club and go to events such as the ECE Lunch with ProfS.
  - Join the Queen’s student branch of the Institute of Electrical and Electronics Engineers.

- **GET THINKING GLOBALLY**
  - Is an exchange in your future? Start thinking about where you would like to study abroad. Apply in January for a 3rd year exchange through your faculty’s International Office.
  - Grapple with program decisions? Go to the Orientation Evenings held by different Engineering departments and attend the various Career Fairs during the year.

- **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 Vault Guide to Technology Careers, talking to people whose jobs interest you, or finding engineering alumni on LinkedIn.
  - 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 Service.

### 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.**

*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!