Civil Engineering

MAJOR MAP

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

What can I learn studying CIVIL ENGINEERING?
- Knowledge of civil engineering methods and theory
- Apply principles of physics and mathematics to the design of physical environments such as bridges, buildings, dams
- Knowledge of the interactions among land use, water use, and environment quality
- Work independently and in teams
- Team work - work with other students on a project
- Oral and written communication - engineering report writing skills and presentation skills
- Leadership
- Time management and organization – manage several ongoing projects

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.

Get to know CIVIL ENGINEERING
We go about our lives within a physical environment created by civil engineers: homes, schools, office buildings, highways, bridges, subway systems, airports, river and coastal systems and green landscapes. As a civil engineering student, you will study how to plan, design and build these structures and systems with an environmentally-respectful approach. As part of its real-world preparation, this innovative program emphasizes self-learning, teamwork, communication, leadership and problem solving. Courses and electives are grouped into structural, environmental, hydrotechnical, and geotechnical streams.

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.

Degree OPTIONS
Bachelor of Science in Engineering
Bachelor of Science in Engineering with Professional Internship
Specialization in Structural Design, Geotechnical Engineering, Hydraulics, and Environmental Engineering

Queen’s ADMISSIONS
Students apply to Queen’s Engineering (IDE 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
Civil 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:
- Geotechnical Engineering
- Infrastructure Rehabilitation
- Civil Week
- Reinforced Concrete Design
- Geoenvironmental Design
- River Engineering

We envision the nourishment of a naturally-developing thread in our program which is focused on the sustainability of both the natural and built environment.

We’re closer than you think
We are a degree from Queen’s.
GET THE COURSES YOU NEED

**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!

**2ND YEAR**
- Students will start their second year by participating in the first of three Civil Weeks.
- Courses include: Chemistry, Mechanics, Applied Mathematics, Materials, Numerical Methods, Hydraulics and Engineering Economics.
- You will also take the second EDPS course – APSC200. Finally, you will take one List A (Humanities and Social Science) Complementary Studies course.

**3RD YEAR**
- Students will start their third year by participating in their second Civil Week.
- Courses include: Structural Analysis, Geotechnical Engineering, Hydraulics, Groundwater Engineering, Structural Steel Design, Water & Wastewater Engineering and Design Practice.
- You will also take one List A Complementary Studies course, plus one Management Elective.

**4TH OR FINAL YEAR**
- Students will start their fourth year by participating in their third Civil Week.
- All CIVL students take a core course in Civil Engineering Design and Practice. You will also need to take 8 Technical Electives, which provide the opportunity to specialize or do a research thesis (CIVL 500) as one of the electives.
- Finally, you will need to choose one List A, B, C, or D Complementary Studies course, and you are set to graduate!

GET RELEVANT EXPERIENCE

- Join teams or clubs on campus such as the Concrete Canoe Team.
- 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 (STS). Science, Quest and Engineers without Borders (EWB).
- Consider joining an intramural sports or an athletics team. Check out the Athletics & Recreation site.

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 wondering about career options from Career Services.

Where could I go after graduation?
- Archaeology
- Architecture
- Business administration
- Environmental conservation
- Construction
- Environmental engineering
- Design engineer
- Foreign Service
- Geographic information systems
- Geomatics
- Industrial engineering
- Informatics
- Insurance
- International development
- Landscape architecture
- Law
- Mapping, surveying & cartography
- Materials engineering
- Mining engineering
- Occupational health and safety
- Public administration
- Public transportation
- Real estate
- Robotics
- Special effects
- Strategic planning
- Structural engineer
- Water resources engineering
- Urban and regional planning

Consider registering with Professional Engineers Ontario (PEO)
- Join groups on LinkedIn reflecting specific careers or topics of interest in Civil Engineering.
- 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 on-campus or co-op experience and training.
- Listed careers are only suggestions. Consider applying to the NSERC CREATE Programs (e.g. CSEER).
- International students interested in staying in Canada can speak with an International Student Advisor for help.

Where could I go after graduation?
- Industrial engineering
- Informatics
- Geomatics
- International development
- Landscape architecture
- Law
- Mapping, surveying & cartography
- Materials engineering
- Mining engineering
- Occupational health and safety
- Public administration
- Public transportation
- Real estate
- Robotics
- Special effects
- Strategic planning
- Structural engineer
- Water resources engineering
- Urban and regional planning

* Some careers may require additional training. Listed careers are only suggestions.

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