Civil Engineering

Get to know
CIVIL ENGINEERING

Civil Engineers create the infrastructure of society: homes, schools, office buildings, highways, bridges, subway systems, airports, river and coastal protection, green landfills, water and wastewater treatment plants. Are you concerned about climate change? In this program you will learn how to plan, design, build, and maintain Civil and natural systems, and addressing climate change impacts. 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.

Degree OPTIONS

Bachelor of Applied Science in Engineering
Bachelor of Applied Science in Engineering with Professional Internship

Specialization in Structural Design, Geotechnical Engineering, Hydraulics, and Environmental Engineering

Smith Engineering

ADMISSIONS

Students apply to Smith Engineering (QE) through the OUAC (Ontario University Application Centre) website. Secondary School prerequisites include these five 4U courses, English 4U, Calculus and Vectors 4U, Advanced Functions 4U, Chemistry 4U, and Physics 4U. Applicants outside of Ontario may have additional requirements.

A Common START

Smith Engineering 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. Smith Engineering 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
• Reinforced Concrete Design
• Geoenvironmental Design
• River Engineering
• Environmental Engineering
• Groundwater Engineering and Subsurface Contamination
• Water and Wastewater Engineering,
• Municipal Hydraulics.

“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.”


That is a degree from Queen’s.

civil.queensu.ca
**Civil Engineering MAJOR MAP**

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

### GET THE COURSES YOU NEED

**1ST YEAR**
- Smith 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 Civil Week, a group based design challenge.
- 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 Complementary Studies course.

**3RD YEAR**
- 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**
- All Civil 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 or B Complementary Studies course, and you are set to graduate!

### GET EXPERIENCE

- Join teams or clubs on campus such as the Concrete Toboggan Team, Concrete Canoe Team, and the Bridge Building Club.
- See the AMS Clubs Directory or the Queen’s Get Involved page for more ideas.
- Volunteer on- or off-campus with different community organizations, such as Let’s Talk Science (LTS), Science Quest, and Engineers Without Borders (EWB).
- Consider joining an intramural sports or an athletics team. Check out the Athletics & Recreation site.
- Get involved with the Engineering Society (ENGSOC).
- Start or continue volunteering with organizations such as the American Society for Engineering Environmental Conference (CEEC).
- Consider joining professional associations like the Canadian Society for Civil Engineering.
- Join groups on LinkedIn reflecting specific careers or topics of interest in Civil Engineering.

### GET CONNECTED WITH THE COMMUNITY

- 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 Four Directions Indigenous Student Centre.
- Explore different careers of interest in the Career Services Career Advising and Resource Area. For more information check out Career Counseling or by finding and connecting with alumni on LinkedIn.
- Grappling with program decisions? Go to the Orientation Evenings held by different Engineering departments throughout the various Career Fairs during the year.
- Get some help about career options from Career Services.

### 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.
- What are the required tests? Look into List A (Humanities and Social Science)
- Take more responsibility within different clubs or extracurriculars such as Civil Club, Concrete Toboggan Team, Concrete Canoe Team, and the Bridge Building Club.
- Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills.
- Consider registering with Professional Engineers Ontario (PEO).
- Let’s Talk Science (LTS), Science Quest, and Engineers Without Borders (EWB).
- Reflect on the various Career Fairs during the year.
- Consider joining professional associations like the Canadian Society for Civil Engineering.
- Explore different careers of interest in the Career Services Career Advising and Resource Area. For more information check out Career Counseling or by finding and connecting with alumni on LinkedIn.
- Start focusing on areas of interest. Research education requirements for your career 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.

### GET READY FOR LIFE AFTER GRADUATION

- 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.
- Do some targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen’s Connects Career Network.
- 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.
- Ask a QUIC advisor or get involved with the Engineering Society (ENGSC) to discuss career opportunities with a faculty member or apply for an external summer research opportunity. If interested, apply to do a 12-16 month QUIC internship between your third and fourth year.
- Civil’s Industry Open House allows students to discuss career opportunities with industry professionals.
- 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 registering with Professional Engineers Ontario (PEO).

### 2023-2024

**GET THE COURSES YOU NEED**

**GET EXPERIENCE**

**GET CONNECTED WITH THE COMMUNITY**

**GET THINKING GLOBALLY**

**GET READY FOR LIFE AFTER GRADUATION**

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### Where could I go after graduation?

- **Archeology**
- **Architecture**
- **Environmental engineering**
- **Design engineer**
- **Geographic information systems**
- **Geomatics**
- **Industrial engineering**
- **International development**
- **Landscape architecture**
- **Mapping, surveying & cartography**
- **Materials engineering**
- **Mining engineering**
- **Occupational health and safety**
- **Public administration**
- **Real estate**
- **Strategic planning**
- **Structural engineer**
- **Water resources engineering**
- **Urban and regional planning**

### Employability skills

Smith Engineering will give you valuable skills to boost your employability:

- **Knowledge of civil engineering methods and theory**
- **Apply principles of physics and mathematics to the design of physical environments such as bridges, buildings, and dams**
- **Know the interactions among land use, water use, and environment quality**
- **Work independently and become a lifelong learner**
- **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**

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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.

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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.

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.