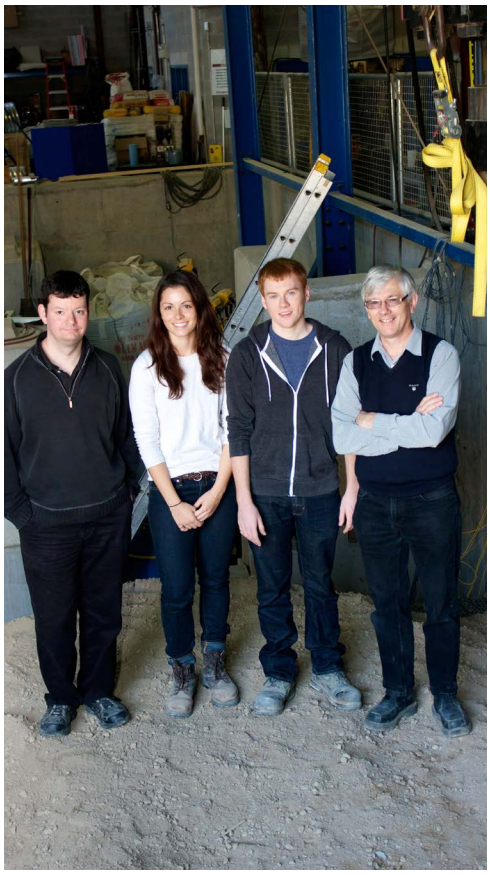
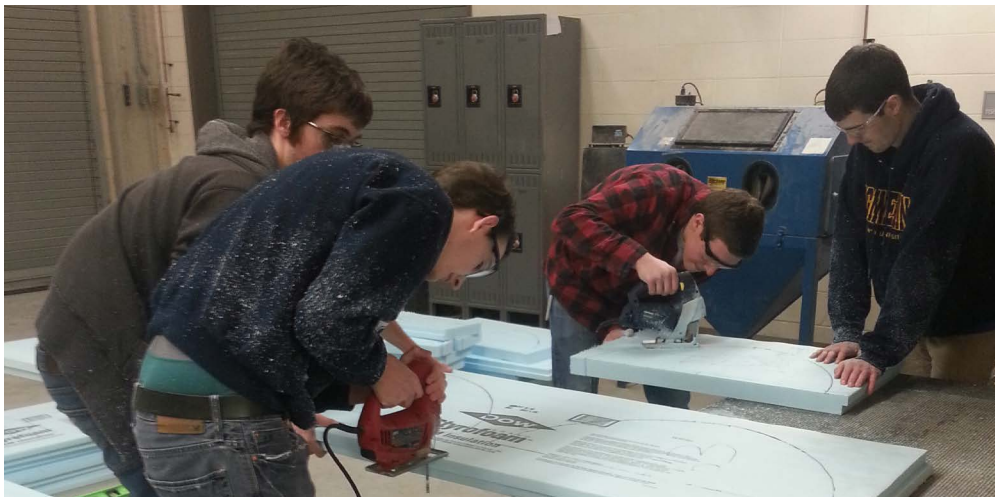
Civil Engineering

Queen's UNIVERSITY | FACULTY OF ENGINEERING AND APPLIED SCIENCE

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 landfills. 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.





"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."

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 (QE) through the OUAC (Ontario University Application Centre) website. Secondary School prerequisites include six 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 J-Section, 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

Acquire Skills. **Gain** Experience. **Go** Global.

That is a degree from Queen's. **civil.queensu.ca**

2016 - 2017

Civil Engineering MAJOR MAP

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

Queen's 175 YEARS

	1ST YEAR	2ND YEAR	3RD YEAR	CONSIDER A 12-16 MONTH QUIP INTERNSHIP	4TH OR FINAL 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!	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.	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.		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.	Look into summer jobs by talking to the dept. or Career Services about work through SWEP or NSERC. Take more responsibility within different clubs or extracurriculars as: Civil Club, Concrete Toboggan Team, Concrete Canoe Team, and the Bridge Building Club.	Stay during the summer as an assistant to a faculty member or apply for an external summer research opportunity. If interested, apply to do a 12-16 month QUIP internship between your third and fourth year. Civil also offers a Job Network and Industry Open House which students are encouraged to attend.		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 the Career Services skills workshop for help.
GET CONNECTED WITH THE COMMUNITY	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 Commerce & Engineering Environmental Conference (CEEC). Consider joining professional associations like Canadian Society for Civil Engineering (CSCE).	Do some targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen's Connects Career Network. Consider applying to the NSERC-CREATE Programs (e.g. SERA).		Consider registering with Professional Engineers Ontario (PEO). Join groups on LinkedIn reflecting specific careers or topics of interest in Civil Engineering.
GET THINKING GLOBALLY	The Queen's University International Centre is your first stop to learn how to internationalize your degree or to leverage your existing cross-cultural experience. Speak to a QUIC advisor or get involved in their programs, events and training opportunities.	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. If exchange isn't for you, come talk to QUIC about some other options.	Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills. Check QUIC's resources for ideas to go abroad, and volunteer or attend one of their events.		Prepare for work or studies in a multi-cultural environment by taking QUIC's Intercultural Competency Certificate, and research possible immigration regulations. International students interested in staying in Canada can speak with an International Student Advisor.
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.	Explore different careers of interest by reading books in the Career Services Career Advising and Resource Area, such as *Civil Engineering Careers*. For more information check out Career Cruising or by finding and connecting with 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 Services.		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.

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

*some careers may require additional training

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

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Civil Engineering

MAJOR MAP

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.

A balanced approach leads to long-term success. While you will learn a lot from your studies, taking time to get relevant experience outside of the classroom, build your network, and gain international experience, will position you to be more competitive in your job search or grad school applications.

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.

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

Take the time to think about the unique skills you have developed at Queen's, starting with the skills list here for ideas. Explaining your strengths with compelling examples will be important for applications to employers and further education. For help, check out the **Career Services skills workshop**.

What can I learn studying CIVIL ENGINEERING?

- **Proficiency in mathematics**
- **Knowledge of civil engineering methods and theory**
- **Apply principles of physics and mathematics to the design of physical environments such as roads, bridges, and buildings**
- **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**

Queen's University | DEPARTMENT OF CIVIL ENGINEERING

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