# **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 selflearning, 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





#### "We envision the nourishment of a naturallydeveloping thread in our program which is focused on the sustainability of both the natural and built environment."

#### Queen's ADMISSIONS

Students apply to Queen's 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

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



## Acquire Skills. Gain Experience. Go Global.

That is a degree from Queen's.

#### civil.queensu.ca

2024-2025

# Civil Engineering MAJOR MAP

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

	1ST YEAR	2ND YEAR	3RD YEAR		4TH OR FINAL Y
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 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 (Humanities and Social Science) Complementary Studies course.	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.	N T E R N S H I P	All CIVL students take a core of Civil Engineering Design and P You will also need to take 8 Te Electives, which provide the op to specialize or do a research 500) as one of the electives. Finally, you will need to choos or B Complementary Studies of you are set to graduate!
GET RELEVANT 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.	Look into <u>summer jobs</u> by talking to the Dept. or Career Services about work through <u>SWEP</u> or <u>NSERC</u> . Take more responsibility within different clubs or extracurriculars such as: <u>Civil Club</u> , <u>Concrete Toboggan Team</u> , <u>Concrete Canoe</u> <u>Team</u> , and the <u>Bridge Building Club</u> .	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 <u>QUIP internship</u> between your third and fourth year. Civil's Industry Open House allows students to discuss career opportunities with industry professionals.	NTH QUIP	Investigate requirements for f jobs or other opportunities re careers of interest. Assess what experience you're and fill in gaps with volunteer or internships – check out Car Services <u>workshops</u> for help.
GET ENGAGED		Cat involved with the Engineering Society	Do come targeted networking with	0 < 7	Consider registering with Prof
WITH THE COMMUNITY	community organizations, such as <u>Let's Talk</u> <u>Science</u> (LTS), <u>Science Quest</u> , and <u>Engineers</u> <u>without Borders</u> (EWB). Consider joining an intramural sports or an athletics team. Check out the <u>Athletics &amp;</u> <u>Recreation site</u> .	<ul> <li>(ENGSOC).</li> <li>Start or continue volunteering with organizations such as the <u>Commerce &amp; Engineering Environmental Conference</u> (CEEC).</li> <li>Consider joining professional associations like the <u>Canadian Society for Civil Engineering</u>.</li> </ul>	alumni working in careers of interest by joining the LinkedIn group <u>Queen's</u> <u>Connects</u> Career Network.	A 12-16	Engineers Ontario (PEO). Join groups on LinkedIn reflec careers or topics of interest in Engineering.
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GET ENGAGED 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 the <u>Intercultural</u> <u>Awareness Training Certificate</u> hosted by QUIC and Four Directions Indigenous Student Centre.	Is an exchange in your future? Start thinking about where you would like to <u>study abroad</u> . Apply in January for a 3rd year exchange through your faculty's International Office.	Build your intercultural competence by getting involved with other cultures or by practicing or improving your <u>language</u> <u>skills</u> .	C O N S I D E	International students interes staying in Canada can speak v International Student Advisor
				>	
GET CAREER READY	Grappling with program decisions? Go to the <u>Orientation Evenings</u> held by different Engineering departments and attend the various <u>Career Fairs</u> during the year. Get some help about <u>career options</u> from Career Services.	Explore different careers of interest in the Career Services Career Advising and Resource Area. For more information check out <u>Career</u> <u>Cruising</u> or by finding and connecting with alumni on <u>LinkedIn</u> .	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 <u>help thinking about grad</u> <u>school</u> from Career Services.		Apply to jobs or future educat make plans for other adventu help from Career Services wit <u>searching, resumes, interview</u> <u>school applications</u> , or other o

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 <u>My Major Map</u> tool.



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#### Knowledge & Workplace Skills

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

- 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
- Knowledge of 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

#### **Career Possibilities**

- Archaeology
- 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

Taking time to explore career options, build experience, and network can help you have a smoother transition to the world of work after graduation.

\*some careers may require additional training. Listed careers are only suggestions.

# Civil Engineering



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.

#### START DATES in May, September, are paid and are 12-16 months or January full-time long • Graduate with a "Professional Internship" degree PROGRAM Learn about current advances, practices and technologies in business and industry. **OVERVIEW** Test drive a career, earn a competitive salary, and get real world experience. 2nd or 3rd Year Students ELIGIBILITY Minimum GPA of 1.9 • Gain a year of career-related work experience. Build network connections. • WHY QUIP? Receive support from Queen's staff in job search and during internship. SAMPLE PAST INTERNSHIPS Mechanical Design Intern Bioengineering

**Civil Project** 

Management

Intern

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

QUIPQUEEN'S UNDERGRADUATE

POSITIONS

WORK TERMS

ss Engin

Atlanta / 2 hrs

Bermuda / 2 hrs

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.



Faculty of Engineering and Applied Science Ellis Hall 58 University Avenue 613.533.2122 civil.gueensu.ca

### Why study in Kingston?

Engineering &

Business Devel

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Since 1841, 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 an doser than you t it is often identified as the safest city in Canada. It is a university city at the core; just a guick 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 -London / 7 hrs CANADA Queen's Beijing / 15 hrs and graduate with Dubai / 14 hrs a degree that is Calgary / 4 hrs Vancouver / 5 hrs globally recognized among the best. Halifax / 2 hrs San Francisco / 5.5 hrs Kingston Toronto Denver/3 hrs New York / 1.5 hrs UNITED STATES Dallas / 3.5 hrs