Get to know GEOLOGICAL ENGINEERING

This program applies principles and techniques of the earth sciences to solve engineering challenges such as: building infrastructure (tunnels, caverns, foundations, dams) on, with or through the materials beneath our feet; locating, evaluating and sustainably extracting essential mineral and energy resources; preventing and remediating soil, rock & water contamination; managing natural hazards; and engineering tools and methods to probe into the earth. You will study physics, chemistry, mechanics and applied mathematics as well as natural processes that shape the earth such as earthquakes, volcanoes, tectonics, mountain building, erosion and sedimentation. You will also acquire valuable field skills and training in state-of-the-art geological investigation and geo-engineering analysis and design.

Degree OPTIONS

Bachelor of Applied Science in Engineering with Professional Internship

Specializations in Geotechnical, Geoenvironmental, Resource Engineering, and Applied Geophysics

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

Geological 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:

• Engineering Geology
• Geological Engineering Field School
• History of Life and Earth Dynamics
• Resource Geoscience and Engineering
• Geotechnical (Rock & Soil) Engineering
• Hydrogeology and Groundwater
• Pure and Applied Geophysics
• Exploration and Environmental Geochemistry

For more information, contact quip@queensu.ca or visit the Program Website.
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 APS1C01, 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!

1ST YEAR


You will also take the second EDPS course – APS2C01 with a focus on Geological Engineering Design

2ND YEAR

Following 2nd year in the spring, you will take a Geological Engineering Field School course.

3RD YEAR


In addition to 3 Complementary Studies courses, you will also take 4 Technical Electives in 3rd and 4th year to specialize or diversify in Geological Engineering. You would typically take 2 of these electives in 3rd year.

Look into summer jobs related to Geological Engineering by talking to the department or Career Services about work through SWEP or NSERC.

Stay during the summer as an assistant to a faculty member or apply for external research opportunities. Apply for NSERC USRA positions in the department of physics.

Consider applying to do a 12-16 month QUIP internship between your third and fourth year.

Do some targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen's Connects Career Network.

Get involved with the Miller Club, the departmental student council. Start or continue volunteering with organizations such as the Queen’s Engineering and Commodities Association.

Attend conferences like the Commerce and Engineering Environmental Conference (ICCE), and the Oil and Gas Speakers Series.

GET CONNECTED WITH THE COMMUNITY

Get involved with the Engineering Society (ENGSOC).

Volunteer on or off campus with different community organizations, such as the EngWeek Committee or the ENGSO Committee on Inclusivity.

Consider joining professional associations like the Canadian Geotechnical Society, the International Association of Hydrogeologists, The Tunnelling Association of Canada and the National Ground Water Association. Investigate Canadian and international professional organizations. Join groups on LinkedIn reflecting specific careers or topics of interest in Geological Engineering.

Investigate requirements for full-time jobs or other opportunities related to careers of interest. Engage in your 4th year design project - a real world example of the work that Geological Engineers do!

Check out Career Services workshops for help.

GET THINKING GLOBALLY

Everyone is encouraged to study abroad.

International students interested in staying in Canada can speak with an International Student Advisor.

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 QUIC and Four Directions Aboriginal Student Centre's Training Certificate, and research possible immigration regulations.

Is an exchange in your future? Start thinking about where you would like to study abroad.

Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills.

GET READY FOR LIFE AFTER GRADUATION

Grappling with program decisions? Go to the Orientation Evening held by different Engineering departments and attend the various Career Fairs during the year.

Get some help deciding by visiting Career Services.

Expore different careers of interest by reading books in the Career Services Career Advising and Resource Area, such as Career Opportunities in Engineering. 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. You may wish to do an independent studies project (GEOE 340).

Employability skills

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

• Knowledge of principles and techniques of the earth sciences
• Practical applications of geological science techniques to engineering design
• Understanding of the variability and change of earth materials over space and time - their history controls their future as engineering materials
• Ability to think spatially and analyze in 4 dimensions
• Fieldwork skills – design and carry out site investigations to solve problems
• Technical skills – use up-to-date geological exploration tools, analysis tools, hi-tech equipment and industry leading software
• Research skills – conduct scientific research and analyze quantitative information, develop multiple working hypotheses
• Management and leadership skills - confidence and independence in new situations, group work strategies, time and resource management
• Oral and written communication skills

Where could I go after graduation?

• Assay Specialist
• Architecture
• Climatology & meteorology
• Coastal and river engineering
• Environmental engineering
• Excavation design
• Geological Science
• Law
• Mining engineering
• Natural hazard mitigation
• Oceanography
• Paleontology
• Toxicology

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

• Summer programs, positions, internships, courses, and work experience, as well as additional training, can help you move forward with your career.

© Career Services, Queen's University, 2018-19

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

*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.