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 CHEMICAL ENGINEERING?

- Knowledge of chemical engineering theory and methods
- Proficiency in mathematics
- Ability to apply physics, chemistry and biology principles to practical engineering projects
- Experience working on hands-on engineering projects
- Technical knowledge - use software to create mathematical models and analyze data
- Research skills - conduct research and collect data
- Complex problem solving - approach problems from various perspectives
- Ability to work independently and in teams
- Written and oral communication - write reports and give presentations to a knowledgeable audience
- Time and resource management

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.

Get to the workplace

Succeed in the workplace

Chemical Engineering

Get to know CHEMICAL ENGINEERING

Society relies daily on products such as fuel, pharmaceuticals, advanced composites, semiconductors, magnetic and optical storage devices, agricultural products, light-weight materials, coatings, synthetic fibers and personal care products. Chemical Engineers develop new advanced materials and design the processes that convert raw materials into value-added products.

Chemical Engineering is a broadly based engineering discipline, which combines the study of mathematics, chemistry, physics and biology, with engineering science, design, and economics. You will learn how to design safe, efficient, environmentally-friendly and economical processes. You will also acquire direct experience with pilot-scale chemical process equipment and simulators. Queen’s Chemical Engineering offers options in Chemical Process Engineering and in Biochemical Engineering.

Areas of specialization through choice of electives: biochemical, biomedical, environmental, process systems engineering, energy, and materials.

Degree OPTIONS

Bachelor of Science in Engineering
Bachelor of Science in Engineering with Professional Internship
Option in Biochemical Engineering / Process 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

Chemical 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:

- Environmental Biotechnology
- Biomedical Engineering
- Pharmaceutical Technology
- Bioremediation
- Polymer Formulations and Process Technology
- Innovation & Entrepreneurship

That is a degree from Queen’s.
Chemical Engineering MAJOR MAP

**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**
- You will also take the second EDPS course – APSC200, as well as a laboratory project course and one additional course based on your option.

**3RD YEAR**
- You will also take another laboratory projects course, as well as three additional courses based on your option.

**4TH OR FINAL YEAR**
- Courses include: Strategies for Process Investigations, Design of Manufacturing Processes, and Transport Phenomena in Chemical Engineering.
- You will also choose 5-6 courses based on your option, and you are set to graduate!

**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.

**GET RELEVANT EXPERIENCE**
- Join teams or clubs on campus such as the Queen’s Solar Design Team, Fuel Cell Team or the Chemical Engineering Club.
- Volunteer on or off campus with different community organizations, such as Let’s Talk Science (LTS) and Women in Science and Engineering.
- Consider joining an intramural sports or an athletics team. Check out the Athletics & Recreation site.

**GET CONNECTED WITH THE COMMUNITY**
- Volunteer on or off campus with different community organizations, such as Let’s Talk Science (LTS) and Women in Science and Engineering.
- Consider joining an intramural sports or an athletics team. Check out the Athletics & Recreation site.
- Get involved with the Engineering Society (ENSOC).
- Start or continue volunteering with organizations such as Engineers without Borders (EWB). Attend conferences like the Conference on Industry and Resources Queen’s University Engineering (CIRQUE) and the Queen’s Engineering Competition.
- Do some targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen’s Connects Career Network.

**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 QUCI 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 QUCI about some other options.
- Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills. Check QUCI’s resources for ideas to go abroad, and volunteer or attend one of their events.

**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.
- Explore different careers of interest by reading books in the Career Services Information Area, such as Nontraditional Careers for Chemists. 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.

**Where could I go after graduation?**
- Agricultural sciences
- Agrochemicals
- Biochemistry
- Biomedical engineering
- Business administration and management
- Chemical process engineering
- Consulting
- Cyotechnology
- Environmental management
- Fluid dynamics - aerospace
- Finance & financial analysis
- Food industry, nutrition & dietetics
- Fuels and petrochemicals
- Government
- Industrial chemicals
- International development
- Manufacturing
- Medical technology
- Mineral processing
- Nanotechnology
- Occupational health and safety
- Oil and gas
- Patent law
- Pharmaceutical engineering
- Planning - urban and regional
- Polymer/rubber/plastic technology
- Private and public research
- Pulp and paper
- Radiology
- Tissue engineering
- Toxicology
- Waste management
- Water conservation

Some careers may require additional training.

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