

# Bachelor of Engineering

# CHEMICAL

## B.ENG.(CHEM)

### What is chemical engineering?

Chemical Engineers design processes and systems that produce more or less everything, including plastics, pulp and paper, traditional and novel fuels, advanced materials for various applications, renewable energy harvesting and production, and pharmaceuticals, as well as processed foods and beverages, to name a few. What a chemist might produce in a test tube, chemical engineers produce by the ton while making sure the process is sustainable and environmentally friendly. This requires efficient and effective systems. The Chemical Engineer is involved in the complete life cycle, from the extraction of raw materials, its transformation and integration into commercial goods and equipment, to its recycling and safe disposal.



### Is this the program for me?

Chemical Engineers are good at math, chemistry and physics. They are interested in exploring how to transform something from one state to another and like to think about new ways of solving related problems. They also have good communication skills and enjoy working with others.

### What kinds of courses do students take?

The first (pre-engineering) year includes general sciences courses in math, chemistry and physics. Québec CEGEP students typically receive one-year advanced standing. Then, students take required courses in general engineering, chemical engineering, physical and organic chemistry. They learn about chemical engineering principles, thermodynamics and transport phenomena, materials science and engineering, biotechnologies, energy science and engineering, process design, instrumentation and control. In parallel, students take a number of specialized complementary courses in various areas of interest, such as electrochemical, biomedical, plasma, environmental and advanced materials engineering.

### Why McGill?

The Chemical Engineering program at McGill is on the rise, graduating more than 80 students each year. The department is unique in Engineering as an equal number of women and men form the undergraduate population. The professorial staff is young and dynamic, with 17 professors constantly thriving to enhance their teaching methods, and laboratory technicians and graduate students directly involved in the teaching of practical skills and safe laboratory practices.

### For further information

**Faculty of Engineering**  
[www.mcgill.ca/engineering/](http://www.mcgill.ca/engineering/)

**Department of Chemical Engineering**  
[www.mcgill.ca/chemeng/](http://www.mcgill.ca/chemeng/)

### How do I apply?

Admissions information:  
[www.mcgill.ca/engineering/future-students/how-apply](http://www.mcgill.ca/engineering/future-students/how-apply)



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## What can I do when I graduate?

Chemical Engineers work in many different fields, including pharmaceutical, pulp and paper, food and beverage processing, petrochemicals, energy and advanced materials, mining, environmental engineering as well as production and manufacturing. They are involved in creating processes that are efficient, safe, environmentally friendly and sustainable from the economic, societal and environmental points-of-view. This includes creating processes that don't spill pollutants into our rivers, treating wastes, and developing cleaner burning fuels that are more energy efficient and less polluting.

Recent graduates in Chemical Engineering have gone on to exciting careers in a wide variety of industries, here are just a few:

- **Airboss Defense**, Polymer Research Engineer
- **The Boston Consulting Group**, Business Associate
- **Hatch**, Process Engineer Consultant
- **Schlumberger**, Field Engineer
- **Shell Canada**, Drilling Engineer-in-Training
- **SNC-Lavalin**, Jr. Process Engineer

## Industries

A degree in chemical engineering will provide you with the skills and experience to design and optimize all kinds of "systems", these can range from production and manufacturing systems to corporate, financial and economic systems. These are some common industries that require chemical engineers:

- Energy and Utilities: Alternative Energy, Hydro, Oil & Gas, Water
- Engineering and Management Consulting
- Pharmaceuticals, Biotechnology and Medical Devices
- Scientific and Technical Services
- Finance & Insurance
- Food & Beverage Production
- Manufacturing & Processing
- Mining
- Agriculture
- Chemicals

## Useful Resources

- **McGill Engineering Student Affairs Office (SAO)**  
Housed in the Engineering Student Centre; Academic Advisors provide assistance and information on program planning and academic success
- **McGill Engineering Career Centre (ECC)**  
Resources, information, job postings and links for engineering students
- **myFuture**  
Job postings McGill students
- **The Engineering Institute of Canada**  
Engineering Career Network
- **CHEmploy**  
Career website for chemical professionals
- **American Institute of Chemical Engineers**  
Career Management Centre

## Professional Organizations

- **Engineers Canada**  
The national organization of the 12 licensing bodies that regulate the practice of engineering in Canada
- **Ordre des ingénieurs du Québec**  
The regulating body for Engineers in Quebec
- **Chemical Institute of Canada**  
Umbrella group for the Canadian Society for Chemistry, Canadian Society for Chemical Engineering and the Canadian Society for Chemical Technology

## Student Life

Chemical engineering students work closely with each other throughout their degree and are a very tight knit group. You will have the opportunity to participate in a variety of clubs, activities and student government. Getting involved in a club or other group is a great way to meet people and build your résumé.

- **Engineering Undergraduate Society (EUS)**  
[www.mcgilleus.ca/](http://www.mcgilleus.ca/)
- **Engineers Without Borders – McGill Chapter**  
[mcgill.ewb.ca/](http://mcgill.ewb.ca/)
- **Canadian Society for Chemical Engineers (CSCHE)**  
Undergraduate Chapter
- **Promoting Opportunities for Women in Engineering (POWE)**  
[www.mcgill.ca/engineering/current-students/undergraduate/student-life/powe](http://www.mcgill.ca/engineering/current-students/undergraduate/student-life/powe)



## Contact Us

### McGill Engineering Student Centre (MESC)

Student Affairs Office, Career Centre,  
Peer Tutoring Services  
Frank Dawson Adams Building  
Room 22  
3450 University Street  
Montreal, Quebec H3A 0E8

### Student Affairs Office (SAO):

Telephone: 514-398-7257  
Email: [info.faceng@mcgill.ca](mailto:info.faceng@mcgill.ca)  
[www.mcgill.ca/engineering/current-students/undergraduate/mesc](http://www.mcgill.ca/engineering/current-students/undergraduate/mesc)

### Engineering Career Centre (ECC):

Telephone: 514-398-8100  
Email: [careers4engineers@mcgill.ca](mailto:careers4engineers@mcgill.ca)  
[www.mcgill.ca/careers4engineers](http://www.mcgill.ca/careers4engineers)



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