

Dare to change your world

UPDATE:



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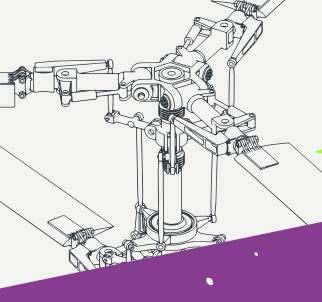
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AEROSPACE Engineering

Is it for you?



Are you passionate about flying machines?



Do you dream of working for NASA?



DID YOU KNOW THAT...

Montreal is one of the largest aerospace centres in the world.

Quebec's aerospace industry conducts over **70**% of Canadian research and development (R&D).



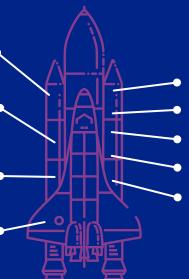
WHAT DO THESE ENGINEERS DO?

Create and lead computer simulations of aerospace vehicles, components and systems.

Conduct laboratory tests with smaller models to validate concepts (e.g. check vehicle stability and control based on its shape and dimensions).

Calculate structural stability, net weight, engine power and thrust as well as flight path and behaviour.

Lead prototype construction and testing.



WHERE DO THESE ENGINEERS WORK?





Air transportation companies

Federal government (military sector)

Academic institutions



QUEBEC AEROSPACE ENGINEERING AT THE HEART OF INNOVATION

CSeries air Aircraft that combine speed, low-energy consumption and passenger comfort.





AVERAGE SALARY \$191926

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium360.ca/enquête)





BACHELOR'S DEGREE IN AEROSPACE ENGINEERING

4 YEARS

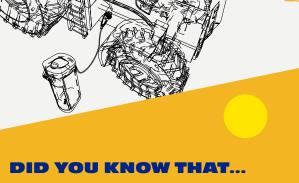


☐ ENDLESS OPPORTUNITIES ☐ IN ENGINEERING!

Learn more about aerospace engineering and other kinds of engineering

AGRI-ENVIRONMENTAL Engineering

Is it for you?



Quebec is in a good position to face current and future challenges.

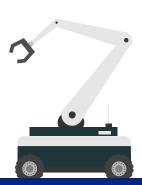
Farms are now part of a thriving international agri-food industry.



Would you like to contribute to sustainable development?



Is protecting the environment important to you?



Source :

REPÈRES WHAT DO THESE ENGINEERS DO?

Design machines that mechanize and automate agricultural work such as seeding, planting, protecting crops, harvesting and handling products.

Create a range of drainage, irrigation, temperature and humidity control, energy consumption and other systems.

Design systems and processes for handling, treating, preserving and processing agricultural and food products.

Conduct quality control studies to assess the impact of agricultural practices.



WHERE DO THESE ENGINEERS WORK?

- Agricultural producer associations
- Consulting engineering firms
- Agricultural enterprises
- Educational institutions
- Federal and provincial government
- Food and beverage industry
- International aid organizations



QUEBEC AGRI-ENVIRONMENTAL ENGINEERING AT THE HEART OF INNOVATION

Agriculture at home

Combining technology with agriculture, a user-friendly turnkey product, reducing human involvement, disposable plastics and food losses.



(IN FRENCH)

AVERAGE SALARY \$119,659

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium 360.ca/enquête)





BACHELOR'S DEGREE IN AGRI-ENVIRONMENTAL ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about agri-environmental engineering and other kinds of engineering



AUTOMATED **PRODUCTION Engineering**

Is it for you?



DID YOU KNOW THAT...

Automated production engineering is a little-known specialty: less than 3% of Quebec engineers specialize in it.

Automobile manufacturers and high technology companies have announced that they will soon market the first models of vehicles with an automated driving system, where drivers can give up full control of their vehicle.

In Canada, Ontario has been conducting a pilot project since 2016 that tests automated vehicles on their routes.



Can you hold your own when it comes to mechanics. electronics and computer science?



Do you dream of designing automated systems that optimize the execution routine tasks?



Source : REPÈRES

WHAT DO THESE ENGINEERS DO?

Develop instrumentation, control and automation systems for various industrial manufacturing procedures.

Supervise and manage all activities related to automated production.

Assess and adjust manufacturing needs based on the plant's capacity and performance, and the human, material and financial resources available.

> Develop a production program based on the data received when estimating the cost, time and material required.

Plan inventory management, equipment use, plant and warehouse layout, and quality control standards.



WHERE DO THESE ENGINEERS WORK?

- Transportation and rolling stock industry
- Aerospace industry
- Plastic and polymer industry
- Pulp and paper industry
- Telecommunications industry
- Agri-food industry

QUEBEC AUTOMATED PRODUCTION ENGINEERING AT THE HEART **OF INNOVATION**

Robots that harvest greenhouse vegetables Achieving the full potential of crops, reducing losses and compensating for the labour shortage.





SALARY Genium 360, Compensation

of engineering professionals in Québec, Investigation report 2024-2025 genium360.ca/enquête)

AVERAGE





CHELOR'S DEGREE IN OMATED PRODUCTION FERING



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about automated roduction engineering and other kinds of engineering

BIOMEDICAL Engineering

Is it for you?



Biomedical engineering combines medicine with the science of engineering to care for people.

Biomedical engineering is one of the fields of engineering with the most gender parity: More than 53% of biomedical engineers are women.

Health sector needs and new technology developments should increase the number of jobs in the biomedical engineering sector by **5%** by 2029.



Are you interested in how the human body works?



Would you like to invent a device that can detect cancers faster?



Source : REPÈRES

WHAT DO THESE ENGINEERS DO?

Design, manufacture and test prostheses, orthotic devices or other health care equipment.

Develop software products and electrical circuits for medical instruments.

Determine technology needs and design methods, equipment, instruments and biomaterials for use in clinics and for medical diagnoses.

Advise hospital administrators on planning, acquiring, modifying, developing, servicing or replacing medical apparatuses and health care programs for the ill.

Ensure effective use of specialized medical equipment, its integration, and networking with other systems.

WHERE DO THESE ENGINEERS WORK?

- Science research and development centres
- Hospitals
- Specialized hospitals
- Academic institutions

Manufacturers of navigation, measurement and control instruments and medical instruments

Medical and dental equipment manufacturers



QUEBEC BIOMEDICAL ENGINEERING AT THE HEART OF INNOVATION

Smart walker for children with muscular dystrophy Limits the need for assistance and transmits relevant data to physiotherapists for easier remote monitoring.





SALARY S93.938

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium360.ca/enquête)





BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about biomedical engineering and other kinds of engineering

BIORESOURCE Engineering

Is it for you?



Are you a nature and technology lover?



Do you imagine a future where technologies will be used to manage natural resources on a sound, sustainable and optimal basis?



DID YOU KNOW THAT...

The bioresource engineering program is the revamped version of the agricultural engineering program.

Bioresource engineering has 4 possible areas of focus: water and soil engineering, bio-environmental engineering, food and bioprocess engineering, agricultural engineering.



WHAT DO THESE ENGINEERS DO?

Plan, develop and implement projects aimed at reducing waste in the environment, rehabilitating contaminated sites, and developing sustainable production systems.

Perform technical analyses of survey data to obtain information on topography, soil, hydrology and other factors, and draft reports.

Participate in the development of alternative sources of renewable energy that meet our energy needs and reduce negative environmental impacts.

Plan, coordinate and manage wastewater and agricultural waste treatment processes.



- Agricultural and agri-food industry
- Specialized machinery and new technology industry
- Environmental and sustainable development consulting firms
- Academic institutions
- Federal and provincial government
 - Non-governmental organizations (NGOs) and international development organizations



Wastewater processed to produce ethanol for Alzheimer medication An advance in the field of medicine.





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BACHELOR'S DEGREE IN BIORESOURCE ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about bioresource engineering and other kinds of engineering



BIOTECHNOLOGICAL **Engineering**

Is it for you?





Are you passionate about biology and diversity in the living world?



Do you dream about taking part in pharmaceutical, chemical or agri-food research studies?



DID YOU KNOW THAT.

3TC, the most widely used drug in the world to treat HIV/AIDS, was discovered in Quebec.

Probiotics are now used in hospitals to help prevent and relieve some health problems.



WHAT DO THESE ENGINEERS DO?

Manage research projects • aimed at developing techniques for using microorganisms, animal cells, and plant cells.

Draft scientific reports and articles on the findings of research studies.

Perform chemical and biochemical analyses as part of a study.

> Develop and implement . quality control tests and monitor them.



WHERE DO THESE ENGINEERS WORK?

Science research and development centres

Manufacturing companies

Academic institutions

Food and beverage industry

Pharmaceutical and cosmetic industry

Refined petroleum product industry

Testing and analytical laboratory services

Medical laboratory, diagnostic analysis and radiology services

QUEBEC BIOTECHNOLOGY ENGINEERING AT THE HEART OF INNOVATION

Potential treatment for diabetic retinopathy Treating the cells that cause this diabetic eve disease with just one injection.







AVERAGE SALARY

Genium 360, Compensation

of engineering professionals

in Québec, Investigation report 2024-2025

(genium360.ca/enquête)



ELOR'S DEGREE



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about biotechnology engineering and other kinds of engineering





Are you fascinated by the way buildings are designed?



Do you read plans like others read novels?



DID YOU KNOW THAT...

Thanks to new technologies and the green building revolution, building engineering is destined to evolve and diversify as a profession.

There is more and more talk about using drones on construction sites to improve safety and make it easier to prepare plans.





WHAT DO THESE ENGINEERS DO?

Conduct feasibility studies that take into account environmental and economic constraints before projects are carried out.

Design building plans and specifications in keeping with building codes and rules.

Prepare application files for authorizations and permits from government authorities.

Supervise work phases and coordinate the activities of the various construction trades.



- Consulting engineering firms
- Builders, developers and general contractors
- Federal and provincial government
- Municipalities and cities
- Landscape architecture services (urban planning firms and landscape architecture firms)



777

QUEBEC BUILDING ENGINEERING AT THE HEART OF INNOVATION

Connexion LOC
A device to facilitate
the connection of
prefabricated homes
to save time on the
construction of the site.





AVERAGE SALARY

\$115,392

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium 360, ca/enquête)





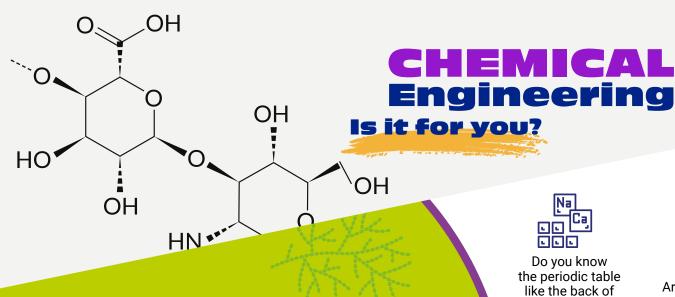
BACHELOR'S DEGREE IN BUILDING ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about building engineering and other kinds of engineering



DID YOU KNOW THAT...

When working on cushions and pillows for spas, Quebec chemical engineers accidently discovered an anti-microbial, non-slip and anti-perspirant plastic material that they ultimately used to design Crocs sandals.

Almost one third of chemical engineering graduates in Quebec work in the paper industry.

Chemical engineering is one of the 15 university-level professions with the best future prospects.



Do you know the periodic table like the back of your hand?



Are you a voracious reader of science and research magazines and articles?





WHAT DO THESE ENGINEERS DO?

Manage research projects aimed at developing chemical and mechanical processes that separate components from a source material, purify them, improve their effectiveness, etc.

> Consult patent agents to protect new products and processes.

Experiment with the physical and chemical aspects of processes to choose suitable substances for production and appropriate materials for building facilities.

Use simulation and calculation tools • to evaluate the equipment and instruments required for chemical processes.

Establish energy and materials review and ensure the reduction of environmental impacts.

WHERE DO THESE ENGINEERS WORK?

- Non-ferrous metal production and processing companies, excluding aluminium
- Agri-food industry
- Chemical industry
- Pulp and paper industry
- Plastics industry
- Pharmaceutical and drug industry
- Refined petroleum product industry
- Steel industry
 - Environmental consulting services
 - Testing and analytical laboratory services

OUEBEC CHEMICAL ENGINEERING AT THE HEART OF **INNOVATION**

Cellulose fibre used to decontaminate water Reduces chemical product use from 20% to 40%. removes more contaminants





AVERAGE SALARY \$131,557

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 enium360.ca/enquête





HELOR'S DEGREE



ENDLESS OPPORTUNITIES N ENGINEERING!

Learn more about chemical engineering and other kinds of engineering



CIVIL Engineering Is it for you?



Does bridge, dam and road construction excite you?



Do you dream of practicing a creative, pragmatic and humanist profession?



DID YOU KNOW THAT...

Traffic light synchronization and traffic planning are civil engineering specialties.

Beyond roads and bridges, civil engineering expertise is essential to constructing buildings, overhead electric lines, sports centres, water utility networks and much more!

A woman completed the work on the Brooklyn Bridge in New York City, the first steel-wire suspension bridge in the world, when her husband, the chief engineer, fell ill.



WHAT DO THESE ENGINEERS DO?

Conduct feasibility studies that take • into account environmental and economic constraints before projects are carried out.

Draft application files for authorizations and permits from government authorities.

Optimize the environmental and economic performances of buildings by minimizing energy consumption and promoting sustainable material management.

> Inspect sites to monitor the progress of projects and ensure that they are compliant.



- Consulting engineering firms
- Builders, developers and general contractors
- Specialist contractors
- Road, street and bridge construction companies
- Public works companies
- Academic institutions
- Federal and provincial government
- Cities and municipalities
 - Landscape architecture services (urban planning firms and landscape architecture firms)

QUEBEC CIVIL AT THE HEART **OF INNOVATION**

3-in-1 laser projector Eliminates the risk of human error, speeds up processes.



AVERAGE SALARY \$127,856

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 genium360.ca/enquête)



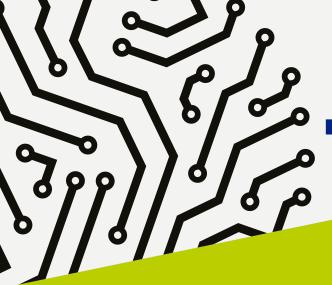


BACHELOR'S DEGREE L ENGINEERING



ENDLESS OPPORTUNITIES N ENGINEERING!

Learn more about civil engineering and other kinds of engineering autres types de génie



COMPUTER Engineering

Is it for you?



Do you dream of programming video games?



Are you captivated by everything that happens behind a computer screen?



DID YOU KNOW THAT...

The first high-level programming languages were created at the end of the 50s.

During the Second World War, Alan Turing developed the first algorithms that made it possible to decrypt secret Nazi codes.

Source : REPÈRES

WHAT DO THESE ENGINEERS DO?

Analyze customer needs by evaluating their computer system, equipment, software, data and computer communication network.

Analyze the requirements for real-time computer technology applications in various fields such as machines and processes, instrumentation, robotics, telecommunications, environmental monitoring, remote sensing, medical engineering, and its related applications, etc.

Design, develop, program, evaluate or install computer systems and software.

Adapt programs so that they are compatible with current and future client needs.

WHERE DO THESE ENGINEERS WORK?

- Consulting engineering firms
- Manufacturing companies
- Companies that specialize in computer services and security
- Communication equipment manufacturers
- Computer and peripheral manufacturers
- Telecommunications industry
- Internet industry
- Federal and provincial government
- Computer, peripheral and software wholesalers
- Banking sector
- Automation sector
 - Aerospace sector

QUEBEC COMPUTER ENGINEERING AT THE HEART OF INNOVATION

Artificial intelligence
that makes cancers
more predictable
Aggregating a variety
of data to support
clinical decision-making
and adapt patient treatments.





SALARY \$130,248

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium 360.ca/enquête)





BACHELOR'S DEGREE IN COMPUTER ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about computer engineering and other kinds of engineering



CONSTRUCTION Engineering

Is it for you?



Have you already drawn the plans for your future home?



Do you dream of building the world's tallest skyscraper?

DID YOU KNOW THAT...

Many construction engineering projects contribute to improving the quality of life for everyone.

Graduates work with architects, designers and many other construction professionals.

Construction engineering combines the best of the profession: hands-on fieldwork and theoretical expertise.



WHAT DO THESE ENGINEERS DO?

Analyze, plan and control all stages of . construction: investigation, design, plans and specifications, materials, environmental and economic impacts, contracts, budget.

Design and direct the construction of civil • structures and infrastructure: roads, bridges, buildings, dams, aqueducts, sewers, waste management sites.

Work on the development and supervision • of work, health and safety, environmental standards, site signage, and selection of materials.

Supervise the progress of the work, ensure quality control and draft reports.

WHERE DO THESE ENGINEERS WORK?

- Consulting engineering firms
- Builders, developers and general contractors
- Specialized contractors
- Academic institutions
- Federal and provincial government
- Municipalities and cities

Building information modelling (BIM) consolidates data into a digital model to facilitate coordination.

COLLABORATIVI

FOSTER

WORK





AVERAGE SALARY

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OR'S DEGREE ONSTRUCTION



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about Construction engineering and other kinds of engineering

ELECTRICAL Engineering

Is it for you?



Do you defend renewable energies?



Are you into transportation electrification?



Electrical engineering expertise can be applied to air navigation systems, biomedical instruments, and home electronic systems.

The electric wheelchair is a Canadian invention.

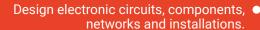
The actor who plays Mr. Bean (Rowan Atkinson) has an electrical engineering degree.





WHAT DO THESE ENGINEERS DO?

Lead research on the feasibility, • design, operation and performance of electronic communication, instrumentation, control and automation systems.



Fine-tune test sets and document electronic circuit evaluation procedures.

Supervise the assembly of prototypes for circuits and commands used in devices such as radars, telemetry equipment, navigation hardware, etc.



WHERE DO THESE ENGINEERS WORK?

Transportation industry

Telecommunications industry

Artificial intelligence industry

Electronics and computer industry

Robotics industry

Aerospace industry

Federal and provincial government

OUEBEC ELECTRICAL ENGINEERING AT THE HEART OF INNOVATION

Devices for people living with vision loss or visual impairment Makes life and everyday activities easier for the visually impaired.





AVERAGE SALARY \$131,068

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium360.ca/enquête)

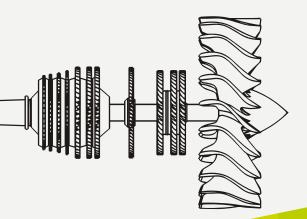


OR'S DEGREE



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about electrical engineering and other kinds of engineering



ELECTROMECHANICAL Engineering

Is it for you?



Do you learn a wide range of subjects with boundless curiosity?



Are you the go-to person when it comes to repairing and optimizing devices?



DID YOU KNOW THAT...

Versatile is the adjective that best describes engineers in electromechanical engineering.

This engineering specialization is a kind of hybrid that combines electrical and mechanical engineering.

The employment rate of graduates is close to 100%.

Some graduates have excellent positions in the aerospace industry, telecommunications, etc.



WHAT DO THESE ENGINEERS DO?

Design, implement and analyze components and systems in an industrial environment.

Measure the impact of technology and industrial production on humans and their environment.

Provide electromechanical design, instrumentation and control, quality control, project management, research and development.



- Manufacturing industry
- Mining industry
- Metal and plastic processing industry
- Automotive and road industry
- Energy industry
- Consulting engineering firms
 - Federal and provincial governments



QUEBEC ELECTROMECHANICAL ENGINEERING AT THE HEART OF INNOVATION

Technology-based indoor gardening system to grow vegetables and herbs on the kitchen counter... no green thumb required!





Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium 360.ca/enquête)





BACHELOR'S DEGREE IN ELECTROMECHANICAL ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about Electromechanical engineering and other kinds of engineering



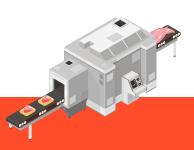
FOOD Engineering Is it for you?

C.V.

Are you considered a foodie?



Do you dream of ice cream that doesn't melt in the sun?



DID YOU KNOW THAT...

The air in a bag of chips is only composed of **78**% nitrogen, an insulating material that keeps the chips fresh and crispy.

The air protects the chips from changes in pressure. NASA once brought bags of chips without air in them into space and the pressure caused the bags to explode.



WHAT DO

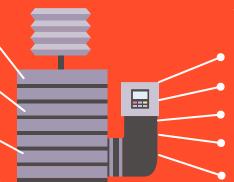
THESE ENGINEERS DO?

Conduct research aimed at developing or improving processes, reactions and food ingredients.

Participate in activities such as research, fine-tuning and developing new products or new industrial processes.

Design and test food processing facilities and material and related processes.

Set up and manage quality control programs, optimization procedures and control strategies to ensure uniformity and compliance with the standards.



WHERE DO THESE ENGINEERS WORK?

Consulting engineering firms

Manufacturing companies

Service trade and industries

Food and beverage industry

Testing and analytical laboratory services

QUEBEC FOOD ENGINEERINGAT THE HEART OF INNOVATION

Recyclable polyethylene film Significantly reducing the ecological footprint of packaging in the food sector.





AVERAGE SALARY \$119,659

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium 360, ca/enquête)





BACHELOR'S DEGREE IN FOOD ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about food engineering and other kinds of engineering

GEOLOGICAL Engineering

Is it for you?



The oldest remains of the Earth's crust, which date back 4.28 billion years, were discovered along the coast of Hudson Bay.

The oldest proof of life on Earth is buried in northern Quebec.



Are you intrigued by Earth events like earthquakes and volcanic eruptions?



Do you dream of being like Indiana Jones and exploring the Earth's caves?



Source : REPÈRES

WHAT DO THESE ENGINEERS DO?

Lead explorations of regions with geological formations that may contain oil or minerals and compile regional geological data.

Plan, develop, coordinate and lead theoretical and experimental studies in the area of mining and mining assessment, as well as feasibility studies for the mining industry.

Analyze seismic data, electrical conductivity, density, magnetic susceptibility and other factors.

Design and build environmental and contaminated site rehabilitation systems.

Design, develop and test computer applications of for geophysics, geochemistry, geology, mapping, and related fields.

WHERE DO THESE ENGINEERS WORK?

- Consulting engineering firms
- Building construction companies
- Academic institutions
- Metal mine operators
- Federal and provincial government
- Oil industry

Mining, mining operation, quarry, oil and gas extraction industry



QUEBEC GEOLOGICAL ENGINEERINGAT THE HEART OF INNOVATION

Saint Leonard cavern in Montreal Explorers found undiscovered passages in this cavern in 2017. A section of 400 meters of this one-of-a-kind cavern is open to the public in the summer.





AVERAGE SALARY \$124.480

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium 360.ca/enquête)





BACHELOR'S DEGREE IN GEOLOGICAL ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about geological engineering and other kinds of engineering



GEOMATICS **Engineering**

Is it for you?



Do like computer science, mathematics. physics and geography?



Do you have a natural sense of direction?







satellite images.

WHAT DO THESE ENGINEERS DO?

Design measurement systems, computer • and geomatics tools for acquiring, recording and managing geospatial data.

DID YOU KNOW THAT...

Geolocalization is an increasingly popular marketing tool used to localize and target

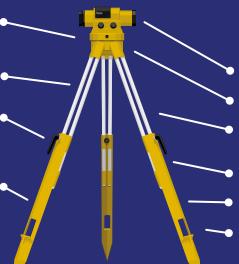
Geomatics makes it possible to track ambulances remotely and even monitor

for flooding risks in the spring. Forest fires are often tracked using

> Develop, add to and analyze • geospatial databases.

Develop and ensure the smooth functioning of geographical information systems for different territory managers (forestry, agricultural, mining, and urban).

Collect and analyze geospatial information to create three-dimensional representations, topographical maps or thematic maps of targeted regions.





Consulting engineering firms

Public service companies

Companies that specialize in computer services

Educational institutions

Federal and provincial government

Survey and mapping services

QUEBEC GEOMATICS ENGINEERING AT THE HEART **OF INNOVATION**

Lac à Paul phosphate mining project

Remote sensing and geomatics tools improve the safety of operations.





AVERAGE SALARY \$130,248

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 jenium360.ca/enquête)



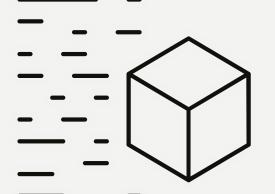


HELOR'S DEGREE



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about geomatics engineering and other kinds of engineering



INDUSTRIAL Engineering

Is it for you?

DID YOU KNOW THAT...

Virtual and augmented reality can help companies plan and optimize operations.

Henry Ford, an American industrial engineer and founder of the Ford Motor Company, is also the creator of Fordism, a well-known organizational and corporate development model.

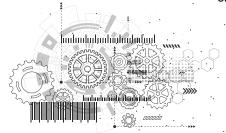
The first doctorate in industrial engineering was awarded in 1930 by Cornell University.



Do you have organizational skills?



Do you like to find solutions to complex challenges?





WHAT DO THESE ENGINEERS DO?

Organize and supervise advanced time and movement studies on equipment operations and the work of operators in view of increasing efficiency.

Conduct studies and design programs that keep inventories at an optimal level for production and maximize equipment, material and resource use.

Come up with working methods that keep physical efforts, task duplication and delays at a minimum.

Develop programs and conduct studies aimed at improving industrial hygiene and safety, identifying risks, minimizing environmental impacts, and applying corrective measures.

Rethink spatial development to ensure optimal use of an area.

WHERE DO THESE ENGINEERS WORK?

- Work for themselves
- Consulting engineering firms
- Plastic and rubber manufacturing companies
- Public service companies
- Transportation companies
- Academic institutions
- Federal and provincial government
- General hospitals and surgery hospitals
- Pharmaceutical and drug industry
- Financial institution
- Wireline and wireless telecommunication services
- Agri-food industry
- Ground transportation equipment industry

QUEBEC INDUSTRIAL ENGINEERING AT THE HEART OF INNOVATION

Automated guided vehicle that transports hospital supplies
Optimizing performance, reducing lost time and labour needs.





Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium360.ca/enquête)





BACHELOR'S DEGREE IN INDUSTRIAL ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about industrial engineering and other kinds of engineering

INFORMATION TECHNOLOGY Engineering Is it for you?

DID YOU KNOW THAT...

Digital data has almost entirely replaced physical storage.

Cybersecurity is a growing issue. Training opportunities in cybersecurity specializations abound in Quebec.





Do you imagine things that don't exist yet?





Do you dream of designing computer and telecommunications systems and networks?



WHAT DO THESE ENGINEERS DO?

- Develop and manage computer of infrastructure services.
- Organize and lead the implementation of complex systems integrating automated systems and software, communication environments, and application software.
 - Identify flaws in systems and suggest effective computer security measures.
 - Set up electronic commerce activities
 at a company.
- Determine the architecture directions when choosing and implementing technology systems that can optimize the quality of services and operations.

Propose approaches to upgrading and replacing
legacy technology environments.



WHERE DO THESE ENGINEERS WORK?

- Electronic commerce industry
- Telecommunications industry
- Web design sector
- IT sector
- Marketing sector
- Cybersecurity industry
- IT service and infrastructure companies
- Video game and virtual reality industry

INFORMATION TECHNOLOGY ENGINEERING AT

THE HEART OF INNOVATION

Email threat detection system Inspecting email and detecting the presence of threats, without reading the content. Protects people without violating their right to privacy.





\$ALARY \$121,959 Genium 360, Compensation

AVERAGE

of engineering professionals in Québec, Investigation report 2024-2025 (genium360.ca/enquête)





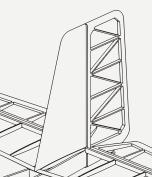
BACHELOR'S DEGREE IN INFORMATION AND TECHNOLOGY ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about information and technology engineering and other kinds of engineering



MATERIALS Engineering

Is it for you?



Are you always looking for new ways to reduce your ecological footprint?

DID YOU KNOW THAT...

Quebec engineers in materials engineering use advanced materials to create ultra-light wheelchairs.

More than 90% of all the things we use in our daily lives come from metals or minerals—a single mobile phone contains about 40 different metals.





Are you known as a very handy person?



Source : REPÈRES

WHAT DO THESE ENGINEERS DO?

Study, develop, improve and apply ore processing of methods to extract metals such as copper, nickel, aluminum, zinc, lead, gold, iron, magnesium, etc.

Coordinate the production and control stages of metal refining, smelting and foundry operations or non-metallic mineral product manufacturing.

> Analyze and improve development and manufacturing processes to reduce the operating costs and ecological footprint and ensure appropriate working conditions for employees.

Create new materials (plastics, ceramics, powders, etc.) which, once recycled, will have different properties.

Develop new production, recycling or • disposal processes that are consistent with environmental protection measures.



- Consulting engineering firms
- Metal industry
- Composites industry
- Aerospace industry
- Rail industry
- Industrial machinery manufacturing plants
- Academic institutions
- Federal and provincial governments
- Steel industry
- Copper and copper alloy rolling, casting and extruding industry
- Mining, quarrying and oil and gas extraction industries
- Testing and analytical services laboratories

QUEBEC MATERIALS ENGINEERING AT THE HEART OF INNOVATION

Sustainable aviation fuel (e-fuel) produces an alternative to fossil and reduces GHG emissions by 80% throughout the life cycle of an aircraft.





AVERAGE SALARY

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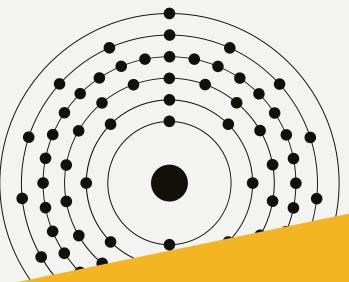


CHELOR'S DEGREE FEDING



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about materials engineering and other kinds of engineering



DID YOU KNOW THAT..

The main metals processed in Quebec

are aluminum, steel, cast iron, copper,

One of the rarest metals on Earth is iridium, a metal that is thought to have been brought here from outer space, because it is abundant on meteorites and very rare in the Earth's crust.

zinc and ferroalloys.

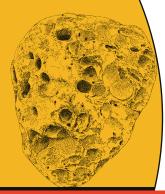
MATERIALS AND METALLURGICAL **Engineering** Is it for you?



Does turning metals into useful objects sound interesting to you?



Would you like to know the secrets of metals and their properties?





WHAT DO THESE ENGINEERS DO?

Conduct research on the behaviour and crystalline structure of materials at certain temperatures and in conditions involving friction and extreme corrosion.

Conduct studies on metals and alloys: their crystalline structure, dispersion of alloy elements in the basic metal, the presence of impurities, cracks and other flaws.

> Estimate the fatigue lives of materials and structures according to different manufacturing processes.

Study the effect of radiation on materials in space and in nuclear reactors.

ceramic combinations to form complex structures and composite materials.

WHERE DO THESE **ENGINEERS WORK?**

- Consulting engineering firms
- Steel companies
- Academic institutions
- Federal and provincial government
- Testing and analytical laboratory services
- Rolling stock equipment manufacturing plants
 - Aluminum and metal industry
 - Aerospace industry

Conduct research on metal and

QUEBEC MATERIALS AND METALLURGY **ENGINEERING AT** THE HEART OF **INNOVATION**

Detection of legionella in the water cooling systems of industrial processes A more advanced detection system for these bacteria.





AVERAGE

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BACHELOR'S DEGREE IN MATERIALS AND METALLURGY ENGINEERING



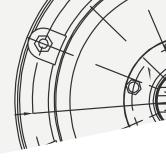
ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about materials and metallurgy and other kinds of engineering



MECHANICAL Engineering

Is it for you?





The snowmobile, a highly popular recreational vehicle in winter, was invented in Quebec.

The first braille printer, the Converto-Braille, was designed by a Canadian who was born blind.

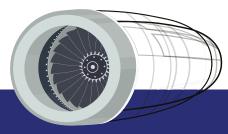
His company adapted the system for IBM computer software, the precursor of the braille software that is now used.



Do you see things that could be improved or optimized on machines?



Do you repair every mechanical object you can get your hands on?



Source : REPÈRES

WHAT DO THESE ENGINEERS DO?

Conduct studies on the feasibility, design, operation and performance of mechanisms and systems.

Analyze stresses (force, temperature, vibration, pressure) on mechanisms, machines and installations.

Conduct applied research and simulations on computers to solve problems with energy use, facility configuration, and mechanical design.

Participate in the design and oversee the development of work plans by suggesting the materials that should be used and the ideal manufacturing method.

Supervise tests on machine prototypes, pilot plants, and products to check whether they run according to the technical specifications.

WHERE DO THESE ENGINEERS WORK?

- Manufacturing sector
- Aerospace sector
- Building industry
- Energy sector and consulting engineering
- Work for themselves
- Consulting engineering firms
- Manufacturing companies
- Federal and provincial government
- Aerospace industry
- Paper pulp, paper and cardboard plants

QUEBEC MECHANICAL ENGINEERING AT THE HEART OF INNOVATION

3D scanner for large objects This scanner provides instant 3D images of large objects such as cars and won the award for invention of the year from NASA

in 2010.





AVERAGE SALARY
\$126,131

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of engineering professionals in Québec, Investigation report 2024-2025

(genium360.ca/enquête)





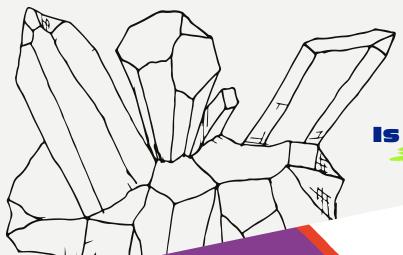
BACHELOR'S DEGREE
IN MECHANICAL
ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about mechanical engineering and other kinds of engineering



MINING Engineering Is it for you?



Are you fascinated by the wealth of resources underground?



Would you like to work in rural areas or even abroad?

DID YOU KNOW THAT..

The largest graphite mine in the West is located in Lanaudière.

This mineral ore is increasingly sought after around the world because it can be used to produce lithium-ion batteries for electric vehicles.





WHAT DO

THESE ENGINEERS DO?

Perform surveys and preliminary studies of mineral ore, mineral or coal deposits to assess the economic and environmental feasibility of future mining operations.

Determine extraction processes based on the deposit characteristics, the stability of the surrounding layers, and the thickness of coverage.

Locate and plan the layout of mining shafts, galleries and chambers (especiallyfor underground mining operations).

Develop suitable drilling and blasting patterns of for extraction processes.

Develop, determine or provide the machines • and installations required to process the mineral ore (crushing, sorting, drying, etc.).

Design, develop and test computer applications for designing, modeling, representing mines and monitoring the conditions of mines.

WHERE DO THESE ENGINEERS WORK?

- Consulting engineering firms
- Academic institutions
- Metal mining operators
- Federal and provincial government
- Mining, mining operation, quarry, oil and gas extraction industry
- Testing and analytical laboratory services

QUEBEC MINING ENGINEERING AT THE HEART OF INNOVATION

Underground Internet (LTE) network

High-performance wireless network that facilitates communication between underground galleries and the surface to increase productivity.





AVERAGE SALARY

\$170,277

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium 360.ca/enquête)





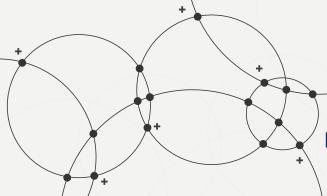
BACHELOR'S DEGREE IN MINING ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about mining engineering and other kinds of engineering



OPERATIONS AND LOGISTICS **Engineering**

Is it for you?



Is your analytical mind your best quality?

DID YOU KNOW THAT..

Operations and logistics engineering is a fairly rare specialty: Less than 1% of Quebec engineers specialize in it.

Operations and logistics engineering is behind the planning, organization and management of large-scale sporting or cultural events.



Are you a math and statistics whiz?



WHAT DO THESE ENGINEERS DO?

Identify, in collaboration with managers,

Develop a mathematical model to represent the problem using a series

Determine the appropriate method(s) and algorithms to solve the modelled problem.

programming and processing of the model using the selected problem-solving methods.

their company's organizational problems or service planning challenges and gather available data on the problem concerned.

of equations.

Complete or participate in the computer

Make simulations on computers and interpret the results provided by the model resolution.

WHERE DO THESE ENGINEERS WORK?

- Industrial and manufacturing sector
 - International logistics sector
- Agri-food industry
- Rubber and plastic industry
- Pulp and paper industry
- Transportation industry
- Continuous improvement consulting sector (LEAN)
- Integrated enterprise resource planning (ERP) systems sales and implementation sector
- Aerospace industry
- Hospitals and the health system

QUEBEC OPERATIONS AND LOGISTICS **ENGINEERING AT** THE HEART OF INNOVATION

GIRO software

Used by 250 companies around the world to plan and increase the efficiency of their public transportation.





AVERAGE SALARY \$130,6**5**9

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BACHELOR'S DEGREE OPERATIONS AND STICS ENGINEERING



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about operations and logistics engineering and other kinds of engineering

PHYSICS Engineering

Is it for you?



Does your bedroom look like a science lab?

Would you rather explore

DID YOU KNOW THAT..

Many people say that engineering physics is the most theoretical and complex branch of engineering. In Quebec, about 1% of engineers choose this discipline.

100% of graduates find employment in their field.



optics, relativity and quantum physics than play video games with friends?



Source : REPÈRES

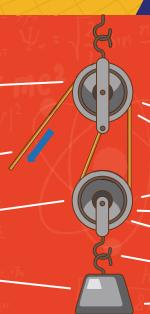
WHAT DO THESE ENGINEERS DO?

Conduct experiments to identify • and measure specific properties of materials for the design of machines and operating methods.

Design, develop and optimize new products, processes, machines or operating methods.

Coordinate the completion of projects that require the contribution of experts and professionals from different disciplines.

> Draft periodic reports on ongoing experiments and findings.



WHERE DO THESE ENGINEERS WORK?

- Academic institutions
- Federal and provincial governments
- Testing and analytical services laboratories
- Research institutes
- Nuclear industry
- Optics industry
- Cutting-edge technology companies

QUEBEC ENGINEERING PHYSICS AT THE HEART OF INNOVATION

Quantum cryptography and communication ensures the security of our virtual exchanges based on physics and not mathematics, and prevents hacking or data theft.





AVERAGE SALARY

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium360.ca/enquête)





ELOR'S DEGREE



ENDLESS OPPORTUNITIES N ENGINEERING!

Learn more about physics engineering and other kinds of engineering



ROBOTICS Engineering

Is it for you?

DID YOU KNOW THAT..

Paige Nickason, 21, is the first patient to have a brain surgery performed by a robot.

Tesla, the car manufacturer, is working on designing a humanoid robot.

In the United States, a robot traveled into the eye of a category four hurricane to gather data that will help us better understand and predict extreme climate events.



Do you dream of designing a mind-controlled bionic arm?



Do robots fascinate you?





WHAT DO

THESE ENGINEERS DO?

Design prototypes and participate in the design of robotic systems.

Determine device architecture and programming.

Determine which operations need to be performed and develop innovative solutions that make it possible for the robot to function.

Search for the cause of errors • in electronic and mechanical equipment or in programming.

Assess machine safety risks based on the standards in force.

Participate in the testing and installation of robotic systems at client facilities.



- Work for themselves
- Consulting engineering firms
- Manufacturing companies
- Federal and provincial government
- Aerospace industry
- High technology sector
 - Industrial sector
 - Industrial instrumentation and equipment manufacturing sector
- Aerospace sector
- Telecommunications sector
- Medical or industrial imaging system manufacturing sector



Automated chatbot technology

Freeing up telephone lines to provide quality customer service.





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BACHELOR'S DEGREE IN ROBOTICS ENGINEERING

4 YEARS



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about robotics engineering and other types of engineering alue; ratio = h/w; app.activeboc ument.layers[0];var shapeRef=[[th.floor((w-1920)/2)+1920,Math. th.floor((h-1080)/2)+1080],[Mat ;app.activeDocument.selection.se ocument.selection.copy(),app.

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50FTWARE **Engineering**

Are you a big-time consumer of new computer software and programs?



Do you dream of creating programs that enable machines and humans to understand each other?



DID YOU KNOW THAT..

Ada Lovelace, a woman who lived in the mid-19th century, created the first computer program.

The three most popular software products in 2021 are Microsoft Excel, Microsoft Word and Zoom meeting.



WHAT DO THESE ENGINEERS DO?

Determine the features required by • the software to meet targeted needs.

> Draft specifications and make software models.

Develop and implement adapted software solutions.

Plan and coordinate the development, implementation, integration, exploration and certification of automated systems and software programs.

Develop maintenance procedures and user guides for operating systems, communication environments and application software.



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WHERE DO THESE **ENGINEERS WORK?**

- Companies that specialize in computer services
- Computer and peripheral manufacturers
- Videogame industry
- Telecommunications industry
- Internet and multimedia industry
- Mobile industry (applications)
- Banking sector
- Automation sector
- Aerospace sector

QUEBEC SOFTWARE ENGINEERING AT THE HEART OF INNOVATION

Securing Quebecers' data Using multiple cloud computing products (fragmenting information rather than putting it all in the same place) so that citizens can better protect their data.





AVERAGE SALARY \$130,248

Genium 360, Compensation of engineering professionals in Québec, Investigation report 2024-2025 (genium360.ca/enquête)





BACHELOR'S DEGREE IN SOFTWARE ENGINEERING



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about software engineering and other kinds of engineering

WATER Engineering Is it for you?



Are you concerned about the situation of the planet's most important natural resource?



Do you dream of finding a way to endlessly recycle drinking water?

DID YOU KNOW THAT..

A waste water study of the Montreal region made it possible to predict the increase in COVID-19 cases in the spring of 2021.

Water engineering skills are a mix between civil engineering and chemical engineering.





WHAT DO THESE ENGINEERS DO?

Carry out water assessments, field work and sampling campaigns.

Submit design, construction and operational reports for water and wastewater treatment projects to clients.

Create new water treatment systems or model existing facilities and equip them with new technologies.

> Design drinking water production systems.



WHERE DO THESE ENGINEERS WORK?

- Federal and provincial government (ministry of natural resources)
- Companies that work in partnership with the public
- Wastewater treatment plants
 - Drinking water filtering plants
 - Hydro-electric industry
 - Food industry
 - Mining industry
 - Consulting engineering firms

QUEBEC WATER ENGINEERINGAT THE HEART OF INNOVATION

Unique integrated research facility in North America for world-class research in water management and quality

Improves water quality in Quebec, facilitates flood predictions, and improves our understanding of contaminant transport.



(IN FRENCH)

AVERAGE SALARY

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BACHELOR'S DEGREE WATER ENGINEERING



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about water engineering and other kinds of engineering

WOOD Engineering Is it for you?

DID YOU KNOW THAT..

99% of single-family homes in Quebec are made from wood.

It is possible to turn forest logging residues into biofuel, a renewable fuel, as a substitute for fossil energies like oil.





Do vou like sustainable genius?



Would you like to create greener fuel for the future of the planet?





WHAT DO THESE ENGINEERS DO?

at plants according to the specifications received from management.

Estimate the costs of producing products • like milled wood, particleboard, furniture, and wood-based construction systems.

Design wood sawing, veneering, drying, machining and preservation processes at plants using their knowledge of industrial engineering, material resistance, thermodynamics, mechanics, physics, chemistry and the anatomical features of wood.

Can design and market innovative products made from wood or composite materials.

WHERE DO THESE **ENGINEERS WORK?**

- Consulting engineering firms
- **Building construction companies**
- Forestry operators
- Wood framework component manufacturers
- Federal and provincial government
- Timber and building material wholesalers
- Paper pulp industry
- Lumber and shingle industry
- Furniture and furnishing industry

OUEBEC WOOD ENGINEERINGAT THE HEART OF **INNOVATION**

Glued laminated timber from Quebec softwood species Limits the presence of certain flaws in timber, increases load resistance.





AVERAGE SALARY \$106,760

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BACHELOR'S DEGREE IN WOOD ENGINEERING



ENDLESS OPPORTUNITIES IN ENGINEERING!

Learn more about wood engineering and other kinds of engineering

NOTES



NOTES





Discover your options

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