



McGill



# Mechanical Engineering



**VISIT US!**

Department of Mechanical Engineering  
Macdonald Engineering Building  
817 Sherbrooke St. West  
Montreal, Quebec H3A 2K6  
Tel.: 514-398-6296  
Fax: 514-398-7365

[www.mcgill.ca/mecheng](http://www.mcgill.ca/mecheng)  
[ugrad.mecheng@mcgill.ca](mailto:ugrad.mecheng@mcgill.ca)

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# Introduction to **McGill** and the Mechanical Engineering Program



*A perfect setting for living and learning.*

**McGill University was established in 1813. It consistently ranks among the top universities in the world.** Its eminent reputation is founded on an outstanding faculty and a brilliant, diverse and dynamic student body. Graduates from McGill have access to excellent career opportunities. In addition, McGill is situated in the heart of Montreal - a bilingual, cultural and cosmopolitan city. This setting is perfect for high-level learning in an enriching city environment.



*Designing a guitar using composite materials.*

The Department of Mechanical Engineering has a long history of excellence in research and teaching, beginning in 1871 as the Department of Applied Science, and officially becoming Mechanical Engineering in 1873. Our Department is made up of a world-renowned academic faculty and exceptional undergraduate and graduate students. For more than a century, we have been committed to training the next generation of innovators, industry leaders and academics. McGill Engineering has been ranked 18th among the

world's top Engineering Schools in a 2009 listing published by U.S. News and World Report. Today, the Department is flourishing with more than 30 faculty members, 550 undergraduate students and over 200 graduate students.

The Department offers accredited Bachelor of Engineering degrees (Regular and Honours programs) as well as Master's and Doctoral degrees.



*Design and testing of microdevices.*



*Vibration testing of a Formula-1 race car airfoil.*



*Electric snowmobile being tested at a research station in Greenland.*



# What our Graduates Say...

## What is Mechanical Engineering?

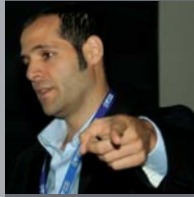
Mechanical engineers are traditionally concerned with the conception, design, implementation and operation of mechanical systems. Common fields of work include aerospace, energy, manufacturing, machinery and transportation. Due to the very broad nature of the discipline, there is usually a high demand for mechanical engineers.

Many mechanical engineers follow other career paths. Graduate studies are useful for specialists working in research establishments, consulting firms, or in corporate research and development. To prepare the mechanical engineer for a wide range of career possibilities, a heavy emphasis in our curriculum is placed on the fundamental analytical disciplines. This is balanced by a sequence of experimental and design engineering courses that include practice in design, manufacture and experimentation. In these courses, students learn how to apply their analytical groundwork to the solution of practical problems. While the program is demanding, there is time for many extra-curricular activities. Students are involved in such professional societies as CASI (Canadian Aeronautics and Space Institute), SAE (Society of Automotive Engineers), and ASME (American Society of Mechanical Engineers), as well as various campus organizations and sports activities.

## Specialization

The Department offers an Honours Program which is particularly suitable for those with a high aptitude in mathematics and physics, and which gives a thorough grounding in the basic engineering sciences.

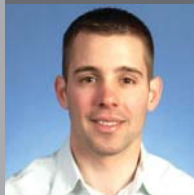
Concentrations in Aeronautical Engineering or Design are available for students in either the Regular or Honours program who wish to specialize in these areas.



**Joey Mennitto**  
B.Eng'92, M.Eng'95  
Senior Engineer,  
Mechanical Design,  
MDA

My fondest memories of McGill University were in 1993. Tucked

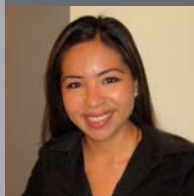
away in the mechanical laboratories of the McConnell Engineering building, I was in the company of soon to be lifelong friends contributing endless hours to the completion of McGill's first solar powered car, Team Ra Power. We were very committed to completing the project. I am grateful to the Faculty of Mechanical Engineering not for awarding me two degrees but rather for providing me the means to earn them.



**Thomas Lavertu**  
B.Eng'02, PhD'06  
Mechanical Engineer,  
GE Global Research,  
Niskayuna NY, USA

The strong fundamental technical skills I learned in the

undergraduate and graduate programs at McGill gave me the expertise to excel in my career. The technical excellence of the education at McGill smoothed the transition into a professional career. This knowledge gave me the ability to contribute to challenging projects and rapidly advance my career.



**Lorena Camargo**  
B.Eng (Honours) '03  
M.Eng'06  
Project Engineer  
Shell Canada

I have great memories and friendships from my years at McGill

University. The quality of the lecturers and the professors provided me with a strong engineering foundation to pursue graduate studies and opened doors for a great professional career. Enrolling at McGill University is without a doubt one of the best decisions I made in my life.



## Research Areas

- Aerodynamics
- Aerospace Mechatronics
- Alternative Fuels
- Biomechanics and Biomimetics
  - Cardiovascular Engineering
- Thermofluids and Computational Fluid Dynamics
- Comminution Dynamics
- Microsystems and Nanosystems (MEMS/NEMS)
- Manufacturing and Process Management
- Multi-scale Mechanics and Design
- Optimization
- Robotic Mechanical Systems
- Shockwave Physics
- Space Flight Dynamics
- Mechanics, Structural Dynamics and Vibration
- Structures and Composite Materials
- Thermo-acoustics

## Career Opportunities

The Montreal area is supported by a very strong aerospace sector that is a natural choice for numerous graduates. Montreal also boasts strong opportunities in design and manufacturing (voted 2006 Unesco Design City of the Year). However, many graduates go onwards and thus, McGill graduates are "open to the world."

## Mechanical Engineering

REQUIRED COURSES		COMPLEMENTARY COURSES		CONCENTRATIONS
Departmental Courses	Non-Departmental Courses	Technical Complementary Courses	Complimentary Studies	
Examples: Mechanics Thermodynamics Fluid Mechanics Design	Examples: Mathematics Engineering Economy Computer Programming	Examples: Composite Materials Robotics Aircraft Structures Combustion Multidisciplinary Design	Examples: Impact of Technology Humanities and Social Studies	Aeronautics Design