

# Civil Engineering

MASc/MEng/PhD

[ryerson.ca/graduate](http://ryerson.ca/graduate)



# Civil Engineering

This unique multi-disciplinary program prepares highly qualified graduate students for active roles in enhancing the nation's economic, environmental and social development. Emphasis is placed on combining both traditional methods and the latest innovative technologies to enable students to broaden their expertise with a variety of challenging problems.

## Research Areas

### Environmental Engineering

- Bioaccumulations of toxins in aquatic space
- Innovative wastewater treatment technologies
- Modelling of watershed and landfill design
- Stormwater management practices
- Urban water and waste systems

### Geomatics Engineering

- Automated object extraction
- Geodesy, hydrographic surveying, estimation and data series analysis
- Geographic information systems (GIS) and applications for civil infrastructure management
- Integrated navigation systems
- LiDAR data processing
- Satellite positioning and navigation
- Satellite remote sensing

### Structural Engineering and Materials

- Behaviour of structures and properties of concrete materials
- Bridge design, construction, repair and rehabilitation
- Deterioration and rehabilitation of infrastructures
- Fatigue and low-temperature cracking in asphalt design
- High-performance concrete
- High-strength/performance concrete and reactive powder concrete
- Offshore structures
- Response of structures subjected to earthquake loading
- Safety performance of transportation infrastructure
- Strength of steel and composite concrete-steel members
- Sustainable development of self-consolidating concrete
- Use of industrial byproducts in concrete and asphalt

### Transportation Engineering

- Highway design and road safety
- Human factors
- Intelligent transportation systems
- Sustainable infrastructure management
- Traffic operations and control/management
- Transportation planning
- Travel demand and behaviour
- Urban operations research

## Admissions Information

<b>MASc</b>	<ul style="list-style-type: none"><li>• Completion of a 4-year bachelor's degree in civil engineering or a related discipline</li><li>• Minimum GPA or equivalent of 3.00/4.33 (B) in the last two years of study</li><li>• Two letters of recommendation, one of which must be academic</li></ul>
<b>MEng</b>	<ul style="list-style-type: none"><li>• Completion of a 4-year bachelor's degree in civil engineering or a related discipline</li><li>• Minimum GPA or equivalent of 3.00/4.33 (B) in the last two years of study</li><li>• Two letters of recommendation, one of which must be academic</li></ul>
<b>PhD</b>	<ul style="list-style-type: none"><li>• Completion of a master's degree in a related engineering or applied science discipline</li><li>• Minimum grade point average (GPA) or equivalent of 3.33/4.33 (B+)</li><li>• Two letters of recommendation</li></ul>

Applicants may be required to provide certification of English language proficiency. For more information, visit [www.ryerson.ca/graduate/futurestudents/admissions/english-language.html](http://www.ryerson.ca/graduate/futurestudents/admissions/english-language.html).

## Resources

- Advanced Asphalt Concrete Testing Facility
- Advanced Cement-Based Materials Laboratory
- Concrete Laboratory
- Digital Mapping Laboratory
- Environmental Engineering Laboratory
- Geo-Optical Laboratory
- Geotechnical Laboratory
- GIS and Geo-Collaboration Laboratory
- Hydraulics Engineering Laboratory
- Road Safety Research Laboratory
- Satellite Navigation Laboratory
- Strength of Materials Laboratory
- Structures Laboratory
- Toronto and Area Road Builders Association Highway Materials Laboratory
- Urban Transportation Laboratory
- Water Resources Engineering Laboratory



**“Ryerson’s Civil Engineering program has not only given me the opportunity to learn and explore the world of engineering, it has also provided me with the tools and the confidence I need to pursue my career ambitions.”**

– Gregory Richards, MASc student

### **International Students**

International Student Services (ISS) provides comprehensive support for the international student community at Ryerson.

[www.ryerson.ca/internationalservices](http://www.ryerson.ca/internationalservices)

### **Program Contact**

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