Civil Engineering

University of Manitoba | Price Faculty of Engineering

Civil engineers plan, design, build and maintain infrastructure such as roads, bridges, buildings, water and wastewater treatment facilities and dams. They apply cutting edge technologies to protect the environment and improve the quality of human life.

The B.Sc. Engineering programs at the University of Manitoba are the only accredited programs within the province of Manitoba which meet the educational requirements for graduates to become registered Professional Engineers within Canada.

Impact and employability

Our population is growing globally, nationally, and here in Manitoba. Our society needs modern cities, advanced transportation systems, reliable energy sources and clean water to support growth and safety of civilization. Civil engineers design the buildings, bridges, roads, dams, sewers and various infrastructure that we interact with every day.

The work of civil engineers is more important than ever due to climate change and the need for resilient and sustainable infrastructure. There will be a long-term need for more civil engineers to modernize our society and to address aging infrastructure.

Entry requirements

- Must complete a minimum of eight (three credit hour) preliminary year courses
- Admission is competitive and is based on the calculated GPA of the top eight courses from the preliminary year list
- March 1 application deadline

Industry examples

- Environmental
- Geoenvironmental
- Geotechnical
- Structural
- Transportation
- Water resources

Are you a student of Indigenous ancestry? Join the Engineering Access Program (ENGAP) at any point in your degree to be part of a warm community that provides a variety of supports and resources.

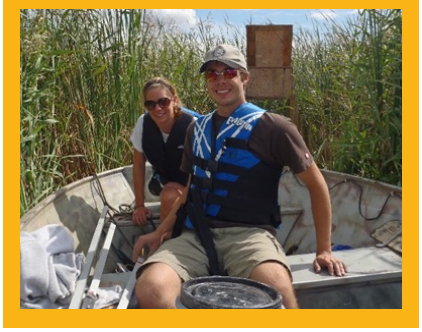
Options, streams and specializations

Environmental and water resources: Environmental engineering topics (water and wastewater treatment, solid waste management) and/or water resources engineering topics (water distribution, land drainage systems, wastewater systems, watershed processes, water resources management, groundwater). Students will acquire fundamental knowledge and practical skills in analysis and design of environmental and water resources infrastructure, computing, and modelling in preparation for a successful career in environmental and water resources engineering.

Geotechnical and geoenvironmental: Analysis and design aspects of engineering projects that come in contact with the earth. This includes shallow and deep foundations, earth retaining structures, road and railway construction, instabilities of hillsides and riverbanks, and engineered slopes for earth dams, highway cuts, embankments and dikes for flood protection. Students will acquire fundamental knowledge and practical skills in analysis, design, laboratory studies, and field exploration in preparation for a successful career in geotechnical and geo-environmental engineering.

Structures and construction: Fundamental theories of structural analysis and design, materials science, construction management and process analysis through building information modelling and virtual design practices for sustainable civil infrastructure. Students will acquire fundamental knowledge and practical skills in structural analysis and design, construction materials, and construction management technologies in preparation for a successful career in structural and construction engineering.

Transportation: Planning, design, operation and management of transportation systems and facilities such as roads, active transportation networks, railroads, and airports. This Stream offers foundational and design courses in transportation planning, geometric design, traffic engineering, road safety, performance of transportation systems, transportation sustainability, pavement engineering, bridge engineering and infrastructure asset management. Students will acquire fundamental knowledge and practical skills in analysis, design, statistics and modelling in preparation for a successful career in transportation engineering.



Experiential learning

Co-operative Education and Industrial Internship Program (Co-op/IIP): Students have the opportunity to complement their studies with a minimum of 12 months of paid work experience of either 4, 8, 12 or 16 month terms. Students will gain valuable skills and industry connections while discovering their career options and goals. Students must be in good academic standing and complete the 12 (three credit hour) preliminary year courses in order to be eligible to apply.

Extra-curricular activities: There are many opportunities for students to advance their learning and make connections by joining a variety of teams, groups, student council, or attending conferences and industry events.

Design teams: Teams offer a vibrant community experience that allow students in any year to apply their academic knowledge to real-world engineering projects which they take to national or international competitions.

Scan to learn more or contact us!

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