


**MAP OUT YOUR CAREER PATHWAY
FROM THE START OF YOUR ACADEMIC JOURNEY!**

PROGRAM OPTIONS
B.Sc. ENG: 4 YEARS
CO-OP AVAILABLE

UMANITоба.CA/CAREERCOMPASS



**UNIVERSITY
OF MANITOBA**

January, 2018



This circular model is rooted in Indigenous culture and shows the interconnectedness of development and success.

WE ARE HERE TO HELP

The university wants you to succeed in all areas of your life! Visit these resources and help centres:

RECOMMENDED ANNUAL CHECKLIST

- ❑ Know the degree requirements and university regulations that apply to your program
- ❑ Meet with an academic advisor to ensure your academic plan meets degree requirements
- ❑ Run a degree audit in UM Achieve
- ❑ Check in with a career consultant to review progress on your career plan
- ❑ Engage in an experiential learning opportunity
- ❑ Update your resumé and LinkedIn profile with applicable experiences
- ❑ Get involved outside of the classroom and get recognized on your Co-Curricular Record

STUDENT SPOTLIGHT



"Choose electives wisely. Pick your electives based on what will help you with your program not just because it fits your timetable. Join student groups, teams, and chapters to learn from senior students and make connections with employers."

Tino, civil engineering student

Read stories of alumni and senior students who mapped their own academic and career plan to fit with their skills, abilities and interests: umanitoba.ca/careercompass

This tool will provide you with the information you need for academic planning and connect you with experiences to develop the knowledge, skills and attitudes that employers are seeking.

CIVIL ENGINEERING AT THE UNIVERSITY OF MANITOBA

As a civil engineering student at the University of Manitoba, you will learn to design, build and maintain infrastructure such as roads, bridges, buildings, wastewater treatment plants and dams. A civil engineer's work has significant impact on the environment and the quality of human life, through safeguarding public centres. Students choose five technical electives, from a variety of topic areas, to specialize in the field of their choice. Students may also choose to pursue an environmental engineering option. Completion of a minor in areas such as Arts, Management, Mathematics, or Geological Science is also possible.

The B.Sc. Engineering programs have continuing accreditation from the Canadian Engineering Accreditation Board (CEAB). B.Sc. Engineering graduates have the educational requirements to become registered Professional Engineers in all Canadian jurisdictions.

SKILLS YOU WILL GAIN BY STUDYING CIVIL ENGINEERING

- Gain an understanding of both the scientific and engineering methods and be able to use these methods to rationally and effectively analyze complex problems involving civil engineering systems.
- Generate conceptual and detailed designs for complex engineering problems, demonstrating the proper use of equipment and instrumentation in the solution.
- Create innovative designs based on economic, environmental and technical factors.
- Manage and/or supervise projects of varying scale and scope with a particular focus on infrastructure projects.
- Communicate effectively, both verbally and in writing, with colleagues, clients, and the general population.

DEPARTMENT OF CIVIL ENGINEERING E1-368 EITC 75 Chancellors Circle (204) 474-9220 civil_eng@umanitoba.ca umanitoba.ca/engineering	CAREER SERVICES 474 UMSU University Centre 65 Chancellors Circle (204) 945-9456 cs.receptionist@umanitoba.ca umanitoba.ca/student/careerservices
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WHAT DO EMPLOYERS WANT?

Industries such as transportation, all levels of government, oil and gas, or research and design would value a civil engineering degree in combination with the employability skills that are highly sought after by employers. These include:*

- Industry specific knowledge
- Problem solving
- Analytical skills
- Team work
- Oral and written communication
- Personal management
- Project management
- Continuous learning

Attain skills through your classroom education and take advantage of experiential education opportunities.

**Information has been taken directly from Employability Skills 2000+ and Workplace Education Manitoba – Essential Skills.*

WHAT IS EXPERIENTIAL EDUCATION?

Experiential education will enhance your classroom education by giving you hands-on experience that will resonate with employers. The University of Manitoba offers a wide variety of programs designed to facilitate your personal growth, create a network and ignite your active engagement in the local and global community.

EXPERIENTIAL EDUCATION OPPORTUNITIES:

- Work experience opportunities
- International student exchanges, international internships and travel study
- Local and international service-learning opportunities
- Undergraduate research and entrepreneurship
- Leadership and volunteer opportunities

The Civil Engineering Compass provides you with suggestions of how and when to use opportunities to make the most of your university experience. You may follow these guidelines or map out your own route.



CIVIL ENGINEERING COMPASS

B. Sc. ENG: 4 Years
Co-op available

	ACADEMIC SUCCESS	CAREER TIPS	VOLUNTEER & WORK EXPERIENCE	CULTURAL OPPORTUNITIES	
<p>YEAR 1 36 CREDITS</p>	<p>Course requirements: CHEM 1300, COMP 1012, PHYS 1050, MATH 1210, 1510 and 1710 and ENG 1430, 1440, 1450 and 1460, plus additional requirements listed on the Civil Engineering website.</p> <p>To do this year:</p> <ol style="list-style-type: none"> 1. Meet with an academic advisor in the Faculty of Engineering to help you plan your program. 2. Apply online for entry into the civil engineering degree program once admission requirements have been met. 3. For academic support, visit the Math Help Centre or contact the Academic Learning Centre to register for a supplemental instruction Session. 	<p>Start planning your career:</p> <ol style="list-style-type: none"> 1. Meet with a career consultant to generate career ideas based on your interests, values, personality and skills. 2. Research careers matching your skills and interests, attend UMES events to learn about engineering programs and career choices. 3. Set up a careerCONNECT account to view job and co-op postings and register for workshops and events. 4. Explore your Co-Curricular Record (CCR), an official record of university-approved activities at communitylink.umanitoba.ca. 	<p>Link experiences to your career interests. Options include:</p> <ol style="list-style-type: none"> 1. Student groups including the University of Manitoba Engineering Society and the University of Manitoba Students' Union. 2. Join the University of Manitoba Volunteer Program to volunteer for Science, Engineering & Technology Day. 3. Student work opportunities including, Work-Study, STEP Services or Federal Student Work Experience Program 4. Experiential education opportunities such as Alternative Reading Week Winnipeg and the Student Leadership Development Program. 	<p>Considering international opportunities? Attend International Week in February for information about opportunities around the world.</p> <p>Explore communities and cultures you want to work with: visit Migizii Agamik, the International Centre or learn about local agencies via 211 Manitoba at mb.211.ca.</p>	<p>SAMPLE CAREERS WITH AN UNDERGRADUATE DEGREE AND RELATED EXPERIENCE</p> <ul style="list-style-type: none"> Bridge Engineer Compliance Officer Construction Engineer Cost Estimator Consulting Engineer Design Engineer Environmental Engineer Facilities Manager Geotechnical Engineer Highway Engineer Infrastructure Engineer Intelligence Officer (CSIS or CSES) Land Development Engineer Landfill Engineer Municipal Infrastructure Engineer Project Manager Road Safety Engineer Structural Design Engineer Sustainable Engineering Professional Technical Salesperson Transportation Engineer Water Resources Engineer <p>OPTIONS REQUIRING OTHER EDUCATION</p> <ul style="list-style-type: none"> Architect Business Analyst City Planner Civil Engineering Technologist Engineering Manager Industrial Designer Land Surveyor Policy Analyst Public Health Inspector Researcher University Professor
<p>YEAR 2 80 CREDITS</p>	<p>Course requirements: Please refer to the Civil Engineering website.</p> <p>To do this year:</p> <ol style="list-style-type: none"> 1. Know the requirements for your degree. Review the model program and meet with an academic advisor if you have questions. 2. Consider applying for the co-op program. 	<p>Make professional connections:</p> <ol style="list-style-type: none"> 1. Apply to the Young Professionals Mentorship program with ACEC Manitoba. 2. Attend career fairs, such as ASE, to connect with employers. 3. Become a student affiliate with Engineers Geoscientists Manitoba. 4. Develop professional connections by attending networking opportunities such as H.I.R.E.D. and Engineering Wine and Cheese events. <p>Market yourself: develop your resumé and cover letter and refine your interview skills.</p>	<p>Gain relevant experience: consider applying to the Co-operative Education and Industrial Internship Program.</p> <p>Gain relevant experiences by volunteering: check out Let's Talk Science and UMES Outreach.</p> <p>Explore student research opportunities: apply for a research assistant position, Undergraduate Research Award or NSERC grant.</p> <p>Consider joining technical societies and competition teams: visit the Faculty of Engineering and University of Manitoba Engineering Society's respective websites for listings of technical societies.</p>	<p>Develop global career skills and expand intercultural learning: consider an international student exchange through the International Engineering Programs Office, Co-op/IIP students can also take advantage of the Canada-Japan program, My World Abroad or SWAP for a "working holiday."</p> <p>Staying local? Check out Engineers Without Borders, the World W.I.S.E. Ambassador Program or one of the local service-learning programs. Consider learning a new language and culture through the Volunteer Language Exchange Program.</p>	
<p>YEAR 3 126 CREDITS</p>	<p>Course requirements: Please refer to the Civil Engineering website.</p> <p>To do this year:</p> <ol style="list-style-type: none"> 1. Discuss your program with your professors and industry professionals to obtain advice regarding the best choice of technical electives for your needs. 2. Meet with your co-op advisor, if applicable. 	<p>Investigate your career options:</p> <ol style="list-style-type: none"> 1. Identify gaps in experience and fill them through volunteering, work placements or internships. 2. Reflect on your classroom learning and identify skills that can be transferred to the workplace. 3. Explore supports available to entrepreneurs for business planning such as Entrepreneurship Manitoba. 4. Create a LinkedIn profile to network with professionals. <p>Consider continuing your studies: check out the Faculty of Graduate Studies, Extended Education or other academic institutions.</p>	<p>Continue your research: participate in the Undergraduate Research Poster Competition or an international internship through the International Engineering Programs Office.</p> <p>Check out student job opportunities with: the City of Winnipeg, Mad Science, Manitoba Hydro and WISE Kid-Netic Energy.</p> <p>Search for job opportunities online: check out Science.ca, Job Bank, Find My Job, Indeed or other search engines.</p> <p>Use your networks and connections: inquire about unadvertised job openings (the "hidden job market").</p>	<p>Did you travel abroad? Become an exchange mentor for the International Student Mentorship Program, join the exchange student community at the University of Manitoba or write an article about your experience.</p> <p>Participate in the multicultural opportunities on campus: participate in the Intercultural Development and Leadership Program, volunteer for the International Student Mentorship Program or take part in the Graduation Pow Wow.</p>	
<p>YEAR 4 163+ CREDITS</p>	<p>Course requirements: Please refer to the Civil Engineering website.</p> <p>To do this year:</p> <ol style="list-style-type: none"> 1. Meet with your co-op advisor, if applicable. 2. Confirm eligibility to graduate with a civil engineering academic advisor and declare intent to graduate in Aurora. 	<p>Start job search 9 months in advance: contact Career Services to refine your job search and self-marketing strategies. You can visit the office up to 6 months after graduation.</p> <p>If you are continuing on to graduate school: finalize your application materials and contact Civil Engineering professors recruiting graduate students. Use the graduate awards database to search for funding and awards to help finance your education.</p>	<p>Ensure you have references in place: ask three work-related references who are willing to expect calls from potential employers. If applying to graduate studies ask your professor for a reference or a letter of recommendation.</p> <p>Target your resumé: update your resumé for each job application. Focus on the knowledge, skills and attributes that are of interest to the employer.</p>	<p>Prepare to work in a multicultural environment: visit Canada's National Research Centre for Truth and Reconciliation on campus. Get access to Lynda.com through the Winnipeg Public Library and take courses to develop your cross-cultural intelligence.</p>	

Note: This resource is meant as a guide to provide suggestions throughout your time at university. Develop a plan and timeline that suits you best. Make intentional choices for your courses and work experiences.

*Please refer to the Academic Calendar for a complete list of program requirements.