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.

COMPUTER ENGINEERING AT THE UNIVERSITY OF MANITOBA

As a computer engineering student at the University of Manitoba, you will learn to develop innovative products and solutions using computer components, systems, and software of your own design. Computing technology is the essential core of modern products, services and communication, with application far beyond simple laptop or desktop computer systems. Computer engineers are the professionals who design and deploy these systems and solutions. As part of the computer engineering program, you will have the opportunity to specialize in application areas such as embedded systems, computer networks and communications, and software engineering. You will demonstrate your breadth of skills and ingenuity through a group capstone project in your final year.

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 COMPUTER 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 affecting both individuals and society.
- Generate conceptual and detailed designs for complex engineering problems, demonstrating the proper use of equipment and instrumentation in the solution.
- The ability to lead the development of new technologies and systems.
- Communicate effectively, both verbally and in writing, with colleagues, clients, and the general population.

WHAT DO EMPLOYERS WANT?

Industries such as aerospace, automotive, cybersecurity, healthcare, HVAC, information technology, machine learning, telecommunications, robotics, software or research and design would value a computer engineering degree in combination with the employability skills that are highly sought after by employers. These include:

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

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 Computer 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.
# CAREER TIPS

**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.

## ACADEMIC SUCCESS

**Course requirements:**
- CHEM 1300, COMP 1012, PHYS 1050, MATH 1210, 1510 and 1710 and ENG 1430, 1440, 1450 and 1460, plus engineering written English requirement.

**To do this year:**
1. Meet with an academic advisor in the Faculty of Engineering to help you plan your program.
2. Apply online for entry into the computer engineering degree program by admission deadline.
3. For academic support, visit the Math Help Centre or contact the Academic Learning Centre to register for a supplemental instruction session.

**YEAR 1**

### 36 CREDITS

**Course requirements:**
- COM 1010 and 2140, ECE 2140, 2220, 2240, 2262, 3610 and 3790, ENG 2030 or 2040, MATH 2130, 2132 and 3132, and PHYS 2152.

**To do this year:**
1. Know the requirements for your degree. Review the model program on the electrical and computer engineering department website.
2. Meet with an academic advisor to review your program.
3. Consider applying for the co-op program.

**YEAR 2**

### 76 CREDITS

**Course requirements:**
- ENG 3000 and 4600 and eight electives.

**To do this year:**
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 UMEES events to learn about engineering programs and career choices.
3. Set up a career CONNECT 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.

## CAREER TIPS

### Year 1

1. Visit the International Centre web site at umanitoba.ca/international to learn about international opportunities for U of M students.
2. Explore communities and cultures you want to work with: visit Missigig Agamik, the International Centre, take part in a Intercultural Retreat or learn about local agencies via 211 Manitoba at mb.211.ca.

### Year 2

1. Meet with an academic advisor to review your program.
2. Consider applying for the co-op program.
3. Meet with your co-op advisor, if applicable.

## VOLUNTEER & WORK EXPERIENCE

**Link experiences to your career interests. Options include:**
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/Work Winnipeg and the Student Leadership Development Program.

## CULTURAL OPPORTUNITIES

**Considering international opportunities?**

- Visit the International Centre web site at umanitoba.ca/international to learn about international opportunities for U of M students.
- Explore communities and cultures you want to work with: visit Missigig Agamik, the International Centre, take part in an Intercultural Retreat or learn about local agencies via 211 Manitoba at mb.211.ca.

**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.

**Participate in the multicultural opportunities on campus:** participate in the Intercultural Development and Leadership Program, volunteer for the Children Rising Mentorship Program or take part in the Graduation Pow Wow.

**Prepare to work in a multicultural environment:** visit Canadad’s National Research Council 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.

**Check out the exchange student community:** visit Migizii Agamik, the International Development Program.

**Consider global career skills and expand intercultural learning:** consider an international student exchange through the International Engineering Programs Office, Co-op/IFP students can also take advantage of the Canada-Japan program, My World Abroad or SWAP for a “working holiday.”

**Staying local?** Check out Engineers Without Borders or one of the local service-learning programs. Consider learning a new language and culture through the Volunteer Language Exchange Program.

**Meet with an academic advisor in the Faculty of Engineering to help you plan your program.**

**Consider applying for the co-op program.**

**Meet with your co-op advisor, if applicable.**

**Confirm eligibility to graduate with an electrical and computer engineering academic advisor and declare intent to graduate in Aurora.**

**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 before graduation.

**If you are continuing on to graduate school:** finalize your application materials and contact computer engineering professor recruiting graduate students. Use the graduate awards database to search for funding and awards to help finance your education.

**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.

**Target your resume:** update your resume for each job application. Focus on the knowledge, skills and attributes that are of interest to the employer.

**Prepare to work in a multicultural environment:** visit Canadad’s National Research Council 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.

**Consider global career skills and expand intercultural learning:** consider an international student exchange through the International Engineering Programs Office. Co-op/IFP students can also take advantage of the Canada-Japan program, My World Abroad or SWAP for a “working holiday.”

**Staying local?** Check out Engineers Without Borders or one of the local service-learning programs. Consider learning a new language and culture through the Volunteer Language Exchange Program.

**Meet with an academic advisor in the Faculty of Engineering to help you plan your program.**

**Consider applying for the co-op program.**

**Meet with your co-op advisor, if applicable.**

**Confirm eligibility to graduate with an electrical and computer engineering academic advisor and declare intent to graduate in Aurora.**

**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 before graduation.

**If you are continuing on to graduate school:** finalize your application materials and contact computer engineering professor recruiting graduate students. Use the graduate awards database to search for funding and awards to help finance your education.

**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.

**Target your resume:** update your resume for each job application. Focus on the knowledge, skills and attributes that are of interest to the employer.

**Prepare to work in a multicultural environment:** visit Canadad’s National Research Council 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.