

MECHANICAL ENGINEERING

Experience Map



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University
of Windsor

MECHANICAL ENGINEERING **CO-OP**
AVAILABLE

MECHANICAL ENGINEERING (AEROSPACE OPTION) **CO-OP**
AVAILABLE

MECHANICAL ENGINEERING (AUTOMOTIVE OPTION) **CO-OP**
AVAILABLE

MECHANICAL ENGINEERING (ENVIRONMENTAL OPTION) **CO-OP**
AVAILABLE

MECHANICAL ENGINEERING (MATERIALS OPTION) **CO-OP**
AVAILABLE

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MECHANICAL ENGINEERING

SKILLS AND KNOWLEDGE OF MECHANICAL ENGINEERING GRADUATES

PROGRAM HIGHLIGHTS

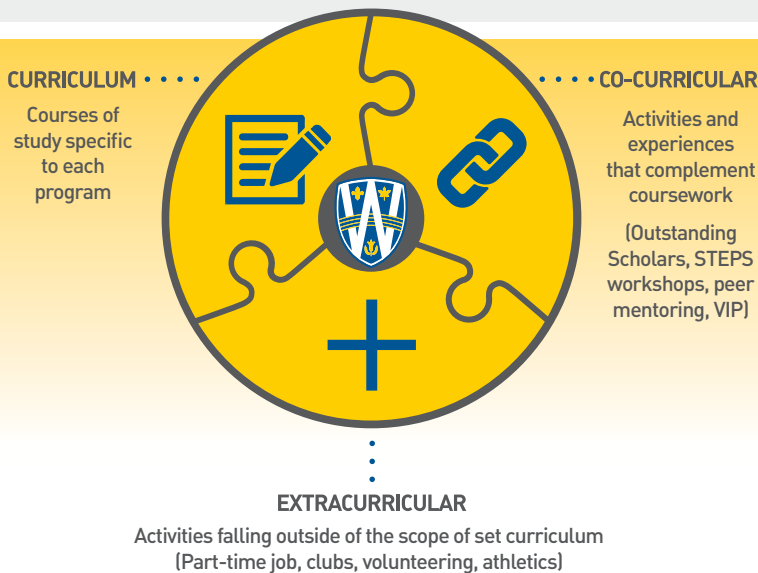
Mechanical Engineering includes two broad areas of study: thermofluids (which involves heat and power) and solid mechanics (involves designing mechanical parts, determining the forces on those parts during operation, and analyzing their performance as part of larger machines and systems). Choose to stay in the General stream and not declare an option, or choose one of the following:

- **Aerospace Option** – Learn the manufacturing, maintenance and logistics involved in serving the aerospace industry. Involves the application of aerospace-related skills toward developing the next generation of aerospace materials, production methods and components, and improving aerospace operational challenges.
- **Automotive Option** – Study such topics as vehicle dynamics, internal combustion engines, diesel technology, and fuel cell technologies. Offers the opportunity to design, build and race vehicles in events sponsored by the Society of Automotive Engineers.
- **Environmental Option** – Learn how to apply mechanical know-how to solve the sustainability challenges facing our world. Combines mechanical engineering with courses in air pollution control, water/wastewater treatment, noise, environmental assessment and waste management.

- **Materials Option** – Explore the structure and properties of metals, ceramics, polymers and composites. Specializations offered in processing operations such as casting, welding and metal forming.

FUNCTIONAL KNOWLEDGE

- Designing, producing, and operating a wide variety of complex mechanical systems
- Understanding and internalizing aerodynamics, heating and ventilation, and energy production
- Planning effective, large-scale projects that manage resources and balance considerations including cost, quality, and speed
- Analyzing complex problems and breaking them down into steps/component parts
- Paying keen attention to detail and producing error-free, work to precise quality standards
- Writing, preparing, and presenting detailed technical reports, presentations, and resources to engage diverse audiences and communicate work



BUILD YOUR SKILLS AND EXPERIENCE

Your U Windsor experience is more than attending classes. It is a combination of academics, co-curricular activities, and extracurricular involvement. By making the most of all three elements of your university experience, you will maximize your opportunities to build your skills, broaden your personal network, and clarify your long term academic and career goals.



CAREER PLANNING GUIDE

Intentional career planning will help you prepare for your next step after graduation. It is a fluid, dynamic, and continuous process, meaning you can move on or return to an earlier stage at any time. You can even work through simultaneous cycles, like one for your long-term dream job and another for a summer job.

Experience Map

HOW TO USE THIS GUIDE

This guide is meant to help you explore various opportunities throughout the course of your UWindsor experience. It is intended to help you link academics, co-curricular, extra-curricular and career planning activities by suggesting some of the options available to you. This is to help you see what you can do, rather than what you are required to do!

Academics



First Year

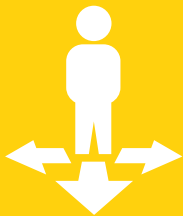
- Take required courses that are common for all first-year engineering students to provide flexibility in program choice
- Review degree course requirements
- Consider applying for co-op to begin work terms in second year*
- Meet with an academic advisor such as the undergraduate advisors or associate chair/head
- Receive academic support, mentoring and advising from the WINONE office in the Centre for Engineering Innovation

Experience



- Explore co-op options and consider applying in Fall of second year*
- Apply for a co-curricular experience such as the Volunteer Internship Program (VIP)*
- Investigate research opportunities as part of the Outstanding Scholars program*
- Aid fourth-year students with their research for final year capstone project
- Gain experience by taking on a summer job
- Research student exchange opportunities for middle years*
- Join such clubs as the Engineering Student Society, SAE Baja or Students Offering Support

Career



- Create a list of things that you enjoy, areas in which you excel, and your skills
- Meet with Career & Employment Services (CES) to develop a plan for your future years
- Consider taking an interest assessment to help you identify possible career paths
- Attend a CES workshop to learn how to find a summer or part-time job
- Become familiar with the mySuccess online job search tool
- Attend a CES resumé and cover letter workshop to get your resumé critiqued

Middle Years

- Take required courses and check in with academic advisor to make sure you are on the right path
- Look into completing a research project with a faculty member in final year★
- Begin taking courses in accordance with Mechanical Engineering major requirements
- Consider completing Aerospace, Automotive, Materials or Environmental option with degree
- Seek out internships and courses that offer field experience★
- Start taking courses required as pre-requisites for graduate/professional school
- Consider declaring a minor and/or specialization

- Join a professional association such as the Canadian Society for Mechanical Engineering
- Seek out opportunities to get experience at a local mechanical engineering firm and network with industry professionals
- Participate in the UWill Discover undergraduate research conference★
- Apply to co-op in fall of second year★
- Complete co-op work term I in the summer of second year and work term II in winter of third year★
- Apply for student exchange★
- Expand your skills by working full-time in your off semesters or taking on a part-time or volunteer position during your academic terms
- Look for a leadership role in a club or society

- Research career fields and occupations
- Explore opportunities and meet employers through a job fair or employer information session
- Attend the Graduate and Professional Schools Fair to explore further educational opportunities
- Analyze the requirements for graduate or professional schools
- Make an appointment with Career & Employment Services to explore career options
- Create a LinkedIn profile and have it critiqued
- Take part in informational interviews through such sources as Ten Thousand Coffees

Final Year

- Meet with faculty and academic advisor to review degree requirements
- Complete all required courses to fulfill degree audit
- Apply to graduate through MyUWindsor Portal
- Work with a faculty member on a research project or publication★
- Consider completing required courses for Honours Certificate in Civil, Environmental, Electrical or Industrial and Management Engineering to pair with degree
- Take a capstone course to optimize your senior experience★

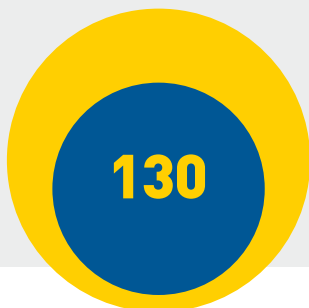
- Complete co-op work term III in the fall semester★
- Take part in SAE Baja competition against students from universities all over North America
- Become a tutor for Students Offering Support (SOS)
- Utilise your knowledge and skills to complete a design experience project in the final-year collaborative capstone course★
- Complete all required technical and approved non-technical electives

- Consider applying to graduate or professional school. Be aware of early application deadlines
- Meet with Career & Employment Services to prepare such application documents as a resumé, cover letter, CV or personal statement
- Attend an Interview Skills Workshop and Job Search Tips Workshop
- Set up a mock interview for professional school or job applications
- Meet employers at the annual job fair in January
- Compose a portfolio of relevant academic and work experience

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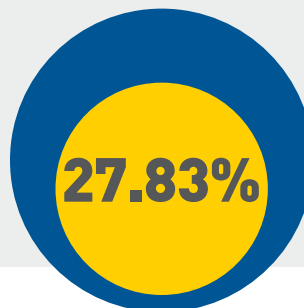
LIFE AFTER GRADUATION

2016



Number of University of Windsor graduates from Mechanical Engineering programs in 2016.

2013



Percentage of Mechanical Engineering graduates from Canadian universities who continue studying after a Bachelor's degree .
(National Graduates Study 2013)



COMMON INDUSTRIES FOR MECHANICAL ENGINEERING GRADUATES

- Academia and research
- Education
- Engineering
- Energy/utilities sector
- Government
- Industry and manufacturing
- Logistics and operations
- Patent/intellectual property law

CAREER TRACKS*

Aerospace engineer
Assembly maintenance
CAD designer
Consultant
Design engineer
Diagnostics engineer
Doctor

EHS manager
Environmental specialist
Facility manager
Financial director
Industry trainer
Lawyer
Logistician

Marketing manager
Materials engineer
Mechanical engineer
Office manager
Operations director
Policy analyst
Professor

Project manager
Quality assurance supervisor
Research co-ordinator
Systems simulator
Teacher
Vehicle development
Water resources engineer

* Additional education and/or training required for some of the above careers.

CAREER-READINESS COMPETENCIES



Critical Thinking and Problem Solving: Using strategic and creative thinking to make decisions and evaluate solutions

- Applying new and/or unfamiliar information and technologies to diverse situations and settings
- Exercising high-level numeracy and performing computations
- Defining research problems and developing research models



Professionalism and Work Ethic: Demonstrating personal management practices and a high level of integrity and ethical behaviour

- Identifying priorities and preferable courses of action to execute necessary tasks
- Managing time, data, and resources to meet deadlines
- Working efficiently by systematizing tasks



Teamwork and Collaboration: Working as a productive member of a group and collaborating with others to achieve set goals

- Managing projects and teams of varying sizes
- Leading and interacting with colleagues who reflect different backgrounds, learning styles, and approaches
- Overseeing contributions to a project and determining outcomes, planning details, delegating, and completing tasks



Communication: Appropriate and effective articulation of ideas and information to a range of audiences

- Preparing and delivering data-driven oral and written presentations and reports using technological aids
- Establishing and communicating hypotheses for projects
- Compiling and organizing facts and information in a presentable manner



CAMPUS RESOURCES

- Visit **Leddy Library** and the **Writing Support Desk** on the main floor for help with academic assignments
- Improve study skills through the **Skills To Enhance Personal Success (STEPS)** program
- Discover ways to get involved on campus through the **Student Success and Leadership Centre**
- Explore mentorship opportunities through the **Connecting4Success (C4S)** and **Bounce Back** programs
- Apply to the **Volunteer Internship Program (VIP)** to get involved in the community
- Look into the **Work Study** program for on-campus employment opportunities
- Broaden your cultural awareness through the **International Student Centre** and **Student Exchange Office**
- Get assistance developing your career plan and job search skills from **Career & Employment Services**
- Consult with the **EPICentre** if you are interested in starting your own business
- Seek out assistance with academic accommodation from **Student Accessibility Services**
- Tend to your health and wellness with support from **Student Health Services, Lancer Recreation** and the **Student Counselling Centre**

Recruitment Office

Phone: 519-973-7014
Toll-Free: 1-800-864-2860
Email: info@uwindsor.ca

WINONE Office

Phone: 519-253-3000, Ext. 2560
Email: winone@uwindsor.ca

Career and Employment Services

Phone: 519-253-3000, Ext. 3895
Email: careerservices@uwindsor.ca
experience.uwindsor.ca



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