EXPERIENCE MAP

Mechanical Engineering

FUTURE FULL OF PROMISE.

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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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

Degree Title / Program	Minimum Average	Admission Requirements
MECHANICAL ENGINEERING	74%	ENG. ADV. FUNC CHEM. and PHYS. required. CALC. VEC. strongly recommended. 74% average in all attempted Science and Math courses, excluding BIO. and DATA M.

- Courses of study specific to each program
- Activities and experiences that complement coursework (Outstanding Scholars, peer mentoring, VIP)
- Activities falling outside of the scope of set curriculum (Part-time job, clubs, volunteering, athletics)

Build your Skills and Experience

Your UWindsor 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.

Explore Opportunities Using This Guide

Explore a selection of opportunities recommended for students in your program. This chart shows some of your many options – you don't have to do everything on it or limit yourself to it. Engage in opportunities from each of the three categories to set yourself up for success:

Academics
- *Your coursework*

Experience
- *Ways to get involved*

Career
- *Plan ahead for what's next*

HIP High-Impact Practice (HIP)

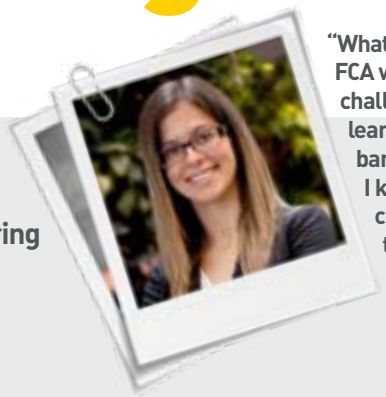
A HIP is an enriching educational experience that can be life-changing and often includes learning outside of the classroom while encouraging meaningful interaction and collaboration, such as:

- Co-op, internship or field experiences
- Research with faculty
- Culminating senior experience
- Capstone courses
- Service-learning
- Learning communities
- Study abroad

	First Year	Middle Years	Final Year
Academics	• 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 HIP • 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**	• 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 HIP • Begin taking courses in accordance with Mechanical Engineering major requirements • Consider completing Aerospace, Automotive, Materials or Environmental option with degree • Seek out courses that offer field experience HIP • Start taking courses required as pre-requisites for graduate/ professional school • Consider declaring a minor and/or specialization	• Meet with an academic advisor to go over degree requirements • Complete all required courses for your degree • Apply to graduate through **MyUWindsor Portal** • Work with a faculty member on a research project or publication HIP • Consider completing required courses for **Honours Certificate in Civil, Environmental, Electrical** or **Industrial and Management Engineering** to pair with degree • Choose a capstone project to optimize your senior experience HIP
Experience	• Explore co-op options and consider applying in Fall of second year HIP • Apply for a co-curricular experience such as **VIP** HIP • Investigate research opportunities as part of the **Outstanding Scholars** program HIP • Aid fourth-year students with their research for final year capstone project HIP • Gain experience by taking on a summer job • Research student exchange opportunities for middle years HIP • Join clubs such as the **Engineering Student Society, SAE Baja** or **Students Offering Support** • Participate in the **Bystander Initiative** workshop to gain skills that will help you be an effective and supportive ally to prevent sexual assault on campus	• Join a professional association such as the **Canadian Society for Mechanical Engineering** • Participate in the **UWill Discover** undergraduate research conference HIP • Seek out opportunities to get experience at a local mechanical engineering firm and network with industry professionals • Apply to co-op in fall of second year HIP • Complete co-op work term I in the summer of second year and work term II in winter of third year HIP • Apply for student exchange HIP • 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	• Complete co-op work term III in the fall semester HIP • Take part in an **SAE Collegiate Design Series** or similar industry sponsored competition • Become a tutor for **Students Offering Support (SOS)** HIP • Utilise your knowledge and skills to complete a design experience project in the final-year collaborative capstone course HIP • Complete all required technical and approved non-technical electives
Career	• Create a list of things that you enjoy, areas in which you excel, and your skills • Meet with a career advisor in **Career Development and Experiential Learning (CDEL)** for help developing a plan for your future years • Consider a career assessment workshop or appointment to help you identify possible career paths • Get involved with a part-time job, volunteer opportunity, campus group, or research assistantship • Attend **CDEL** workshops to learn how to find a summer or part-time job and write a resumé and cover letter • Drop in to meet with one of **CDEL**'s peer advisors to get answers to your career and job search questions	• Research career fields and occupations with the help of a **CDEL** career advisor • Explore opportunities and meet employers through job fairs and employer networking events • Explore further educational opportunities by attending the **Graduate and Professional Schools Fair** and researching admission requirements for programs you are interested in • Attend **CDEL's Using Social Media to Leverage Your Career** workshop • Create a **LinkedIn** profile and have it critiqued • Take part in informational interviews and use sources like **LinkedIn** and **Ten Thousand Coffees** to meet people in your targeted profession • Search job postings to learn what skills, knowledge, and credentials you will need for potential careers	• If you are considering applying to graduate or professional school, be aware of early application deadlines • Meet with **CDEL** to prepare application documents like a resumé, cover letter, CV, or personal statement for jobs and education programs you are applying to • Attend an **Interview Skills Workshop** and **Job Search Tips Workshop** • Use **InterviewStream** to practice your interview skills online • Set up an in-person mock interview with a career advisor for professional school or job applications • Meet employers at the annual job fair in January • Compose a portfolio of relevant academic and work experience

Mechanical Engineering

Life After Graduation



"What an incredible experience! My project with FCA was interesting and the coursework was challenging. The highlight for me was living in Italy, learning creative ways to manage the language barrier, and meeting some of the greatest people I know. In the end, this program led me to my current job at FCA, for which I am extremely thankful."

Ashley Lehman – BASc in Mechanical Engineering [2013]; MASc in Automotive Engineering [2015]

195 Number of Mechanical Engineering Graduates (2017)

93.2% Employment rate of graduates 2 years following degree completion *(OUGS Engineering, 2014)*

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*

Academia
Agricultural equipment
Automotive
Aerospace
Energy generation
Forestry
Heavy industry equipment
Logistics
Manufacturing
Marine equipment
Medical devices
Military/defence
Mining
Nuclear
Petroleum
Plastics
Railway
Steel/Metal production
Telecommunications
Transportation

* 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

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

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

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

Campus Resources

- Research scholarships and bursaries through the **Student Awards and Financial Aid Office**
- Visit **Leddy Library** and the **Writing Support Desk** for help with academic assignments
- Explore mentorship opportunities through the **Connecting4Success (C4S)** and **Bounce Back** programs
- Improve study skills through the **Skills to Enhance Personal Success (STEPS)** program
- Get advice and support about your academic status by making an appointment with **Academic Advising**
- Seek out assistance with academic accommodation from **Student Accessibility Services**
- Discover ways to get involved on campus through the **Student Success and Leadership Centre**
- Look into the **Ignite: Work Study** program for on-campus employment opportunities
- Apply to **VIP** to get involved in a community service learning experience
- Get assistance developing your career plan and job search skills from **Career Development and Experiential Learning**
- Consult with the **EPICentre** if you are interested in starting your own business
- Broaden your cultural awareness through the **International Student Centre** and **Student Exchange Office**
- Find support for Indigenous learners and broaden your understanding of Indigenous culture by visiting **Turtle Island**
- Tend to your health and wellness with support from **Student Health Services** and **Lancer Recreation**
- Receive confidential mental health counselling delivered by trained professionals at the **Student Counselling Centre**
- Seek personal support or learn more about sexual violence education through the **Sexual Misconduct Response and Prevention Office**

Student Recruitment
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 Development and Experiential Learning
Phone: 519-253-3000, Ext. 3895
Email: careerservices@uwindsor.ca
experience.uwindsor.ca

University of Windsor

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