



University
of Windsor



MECHANICAL
ENGINEERING
EXPERIENCE MAP

MECHANICAL ENGINEERING



GENERAL OPTION

AEROSPACE OPTION

AUTOMOTIVE OPTION

ENVIRONMENTAL OPTION

MATERIALS OPTION

HIGHLIGHTS AND SKILLS

PROGRAM HIGHLIGHTS

General Mechanical

Complement an excellent foundation in mechanical engineering with a broad selection of technical courses such as turbomachines, gas dynamics, mechatronics, environmental effects and control of noise, and heating, ventilation and air conditioning. Courses can also be taken from the automotive, aerospace, environmental, and materials options to customize your mechanical engineering degree.

Mechanical Engineering

Begin your journey to an exciting career in mechanical engineering by developing a solid foundation in machine design, CAD, and thermofluids with applications in automotive, aerospace, manufacturing, and materials engineering. Available specializations include automotive, aerospace, environmental, and materials. Our facilities include a dedicated project courtyard where students develop their hands on capabilities. The faculty promotes connections with industry through projects, courses, and workplace co-op opportunities.

- **Aerospace Option** – Develop your aerospace skills as you learn about propulsion, aerodynamics, structures, materials, and drone technology.


Consider taking advantage of our unique opportunity to obtain your private pilot's license for course credit or compete internationally with our aero or rocket teams.

- **Automotive Option** – Study such topics as vehicle handling, vehicle thermal management, innovative powertrain technologies, and participate in hands on learning in the lab. Opportunities abound to design, build, and race a variety of ground vehicles in international competitions.
- **Environmental Option** – Learn how to apply mechanical know-how to solve the sustainability challenges associated with machinery. The program combines the foundation of mechanical engineering with courses that focus on the quality of air and water, and waste management.
- **Materials Option** – Apply the principles of material structure and properties to the design, manufacture, and analysis of components across a range of industry sectors, including automotive and aerospace. Includes metals, ceramics, polymers, and composite materials.

MIN. AVG.* 74% ONTARIO COURSE REQUIREMENTS
ENG4U, MHF4U, SCH4U and SPH4U required. MCV4U is strongly recommended. A minimum average of 74% in all math and science courses except biology is also required.

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
- Developing skills necessary to recognize the need for precision and detail in engineering design tasks
- Writing, preparing, and presenting detailed technical reports, presentations, and resources to engage diverse audiences and communicate work

 Co-op available. * Minimum grade point average for admission to program. A higher average may be required.

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.

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

CAREER PLANNING CYCLE

Intentional career planning will help you prepare for your next step after graduation and beyond. It is a fluid, dynamic, and lifelong process. You can move on or return to an earlier stage in the cycle at any time.



EXPLORE OPPORTUNITIES USING THIS CHART

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.

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

ACADEMICS

Your coursework



- 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 co-ordinator or department head
- Receive academic support, mentoring and advising from the **WINONE** office in the **Centre for Engineering Innovation**
- Attend **WINONE Tutorials** for first-year students for academic support and advice from peer mentors.

EXPERIENCE

Ways to get involved



- Explore co-op options and consider applying in fall of second year
- Investigate research opportunities as part of the **Outstanding Scholars** program
- Gain experience by taking on a summer job
- Aid fourth-year students with their research for their final year capstone project
- Research student exchange opportunities for middle years
- Join a club like 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

CAREER

Plan ahead for what's next



- Create a list of things that you enjoy, areas in which you excel, and your skills
- Consider a career assessment 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 university-level resumé
- Drop in to meet with one of **CDEL's** peer advisors to get answers to your career and job search questions

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 specializing in automotive, aerospace, environmental, or materials options
- Seek out 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 in your field such as the **ASHRAE, SAE, or CSME**
- Participate in the **UWill Discover** undergraduate research conference
- Volunteer at a local mechanical engineering firm to network with industry professionals
- 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 an extended co-op work term placement abroad
- 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
- Meet with a career advisor in **Career Development and Experiential Learning (CDEL)** for help developing a plan for your future years
- Consider for applying to be a **WINONE Tutorial Scholar** or volunteer to assist with outreach activities with the **WINONE Office**

- Research career fields and occupations with the help of a **CDEL** career advisor
- Explore opportunities and meet potential employers by participating in job fairs and industry 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 **engineering job fair** in June and **annual job fair** in January
- Create a **LinkedIn** profile and have it critiqued
- Take part in informational interviews and join online communities like **LinkedIn** and **Ten Thousand Coffees** to connect with people in your targeted profession or industry
- Search job postings to learn what skills, knowledge, and credentials you will need for potential careers

FINAL YEAR

- Meet with an academic advisor to go over degree requirements
- Complete all required courses for your degree
- Apply to graduate through **UWinsite Student Portal**
- Complete your Capstone or Research Project

- Complete co-op work term III in the fall semester
- Take part in an international competition against students from universities all over the world
- Become a tutor for **Students Offering Support (SOS)** or a peer mentor for the **WINONE Tutorials**
- Utilize your knowledge and skills to complete a design experience project in final-year collaborative capstone project with an industry sponsor or partner
- Complete all required technical and approved non-technical electives
- If you are an aerospace option student, consider obtaining your private **pilot's license** for course credit.

- 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 **CDEL's workshops** on interview skills and job search strategies
- 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 **engineering job fair** in June and the **annual job fair** in January
- Compose a portfolio of relevant academic and work experience
- Explore professional development opportunities through **Continuing Education**

LIFE AFTER GRADUATION



Mechanical Engineering is just so versatile. There are so many different opportunities, career paths and avenues in which you can use your creativity and intelligence together.

At the University of Windsor, you really get to know your profs and classmates. The faculty is very homey and that really enhances the learning experience."

Kathryn Doe – BAsC in Mechanical Engineering [2017]

169 **NUMBER OF GRADUATES (2018)**

91.2%

EMPLOYMENT RATE OF GRADUATES

Employment rate of graduates 2 years following degree completion (OUGS Engineering, 2017)

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.*



COMMON SECTORS FOR GRADUATES

- Automotive
- Aerospace
- Energy/utilities
- Government
- Graduate Studies

- Heating, ventilation, and air conditioning (HVAC)
- Industry and manufacturing
- Logistics and operations
- Mechatronics
- Medical Devices

- Metallurgy and materials
- Military/defence
- Mining
- Oil and gas
- Patent/intellectual property law

CAREER-READINESS COMPETENCIES



CRITICAL THINKING
AND PROBLEM
SOLVING



PROFESSIONALISM
AND WORK ETHIC



TEAMWORK AND
COLLABORATION



COMMUNICATION



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
- Learn about our **Bounce Back** program designed to support students struggling to find both personal and academic success in their post-secondary experience
- Build leadership skills and find leadership opportunities at the **Leadership Hub**
- Experience international service learning on an **Alternative Spring Break** team
- 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
- 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**
- Explore professional development opportunities through **Continuing Education**

We've got you covered!

GET IN TOUCH

STUDENT RECRUITMENT

Phone: 519-973-7014
Toll-Free: 1-800-864-2860
ask.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