

# Bachelor of Engineering

UNIVERSITY  
of GUELPH

IMPROVE LIFE.

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## MAJORS



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- Mechanical Engineering



# Bachelor of Engineering

Shaping tomorrow through engineering sustainable solutions

Since 1874, the University of Guelph's engineering program has dedicated itself to enhancing the well-being of humans, animals, and plants through innovative engineering methods. Engineering design forms the core of all our engineering majors, emphasizing its fundamental role in every discipline within U of G Engineering.

As a student, you will engage in hands-on design projects that bridge the gap between theory and reality right from your first year. Each year, you will collaborate with fellow students from various engineering fields on diverse design projects, culminating in your final capstone design course during your last year of study.

At U of G, we offer seven majors in co-op, allowing you to specialize in your preferred area while gaining invaluable industry experience through cooperative education opportunities. Additionally, you have the opportunity to broaden your horizons by pursuing elective courses outside of engineering, such as arts, social sciences, and business. After your second year, you also have the option to pursue a minor, providing you with the chance to expand your knowledge beyond engineering.

The University of Guelph's engineering program offers a dynamic and practical education experience that equips you with the skills and expertise needed to positively impact society through innovative engineering practices.

[uoguelph.ca/engineering/future-students](http://uoguelph.ca/engineering/future-students)

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## OUR PROGRAM



# The Core Foundation

## Interdisciplinary Foundation

(8 courses taken in first year by all Engineering majors)

- Engineering & Design I
- General Chemistry I
- Calculus I
- Calculus II
- Engineering Analysis (Linear Algebra)
- Physics with Applications
- Engineering Mechanics I
- Introductory Electricity and Magnetism

## Courses that differentiate you by major in first year



- Introduction to Programming
- General Chemistry II

Biological, Biomedical,  
Environmental, Water Resources



- Introductory Programming for Engineers
- Object Oriented Programming for Engineers

Computer  
Systems & Computing



- Introduction to Programming
- 1 Elective

Mechanical



## Academic Sequence

### Regular Stream

Year	Fall	Winter	Summer
1	Semester 1	Semester 2	Off
2	Semester 3	Semester 4	Off
3	Semester 5	Semester 6	Off
4	Semester 7	Semester 8	Graduate!

### Co-op Stream

Year	Fall	Winter	Summer
1	Semester 1	Semester 2	Off
2	Semester 3	Semester 4	Co-op
3	Semester 5	Co-op	Co-op
4	Semester 6	Semester 7	Co-op
5	Co-op	Semester 8	Graduate!

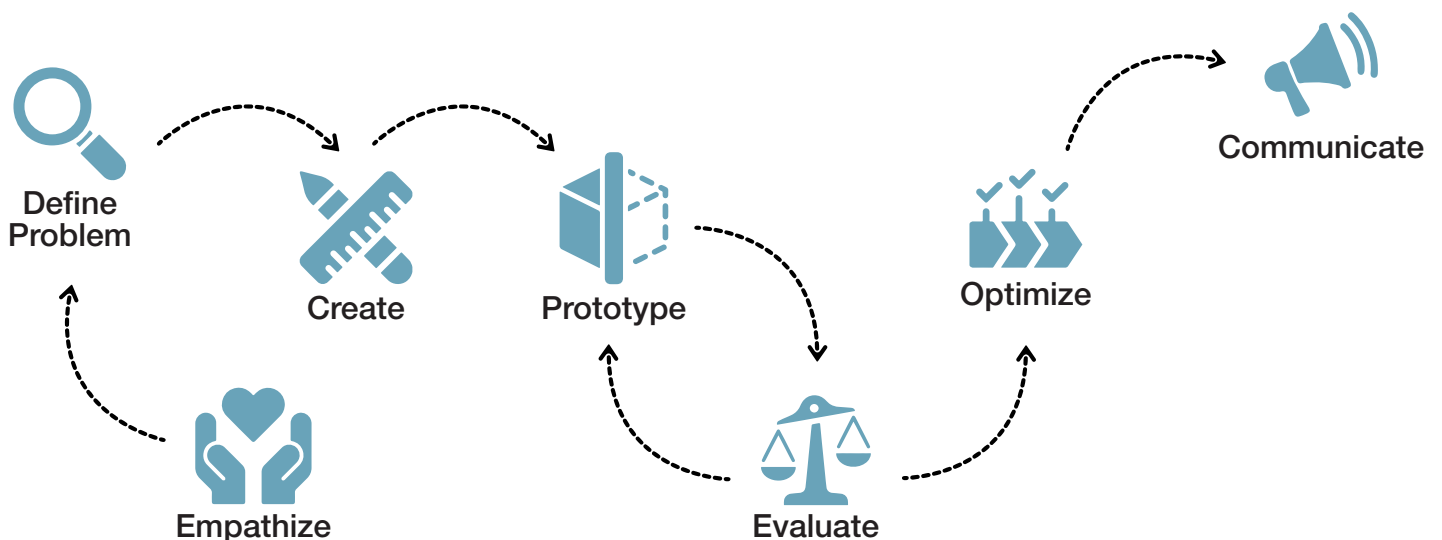
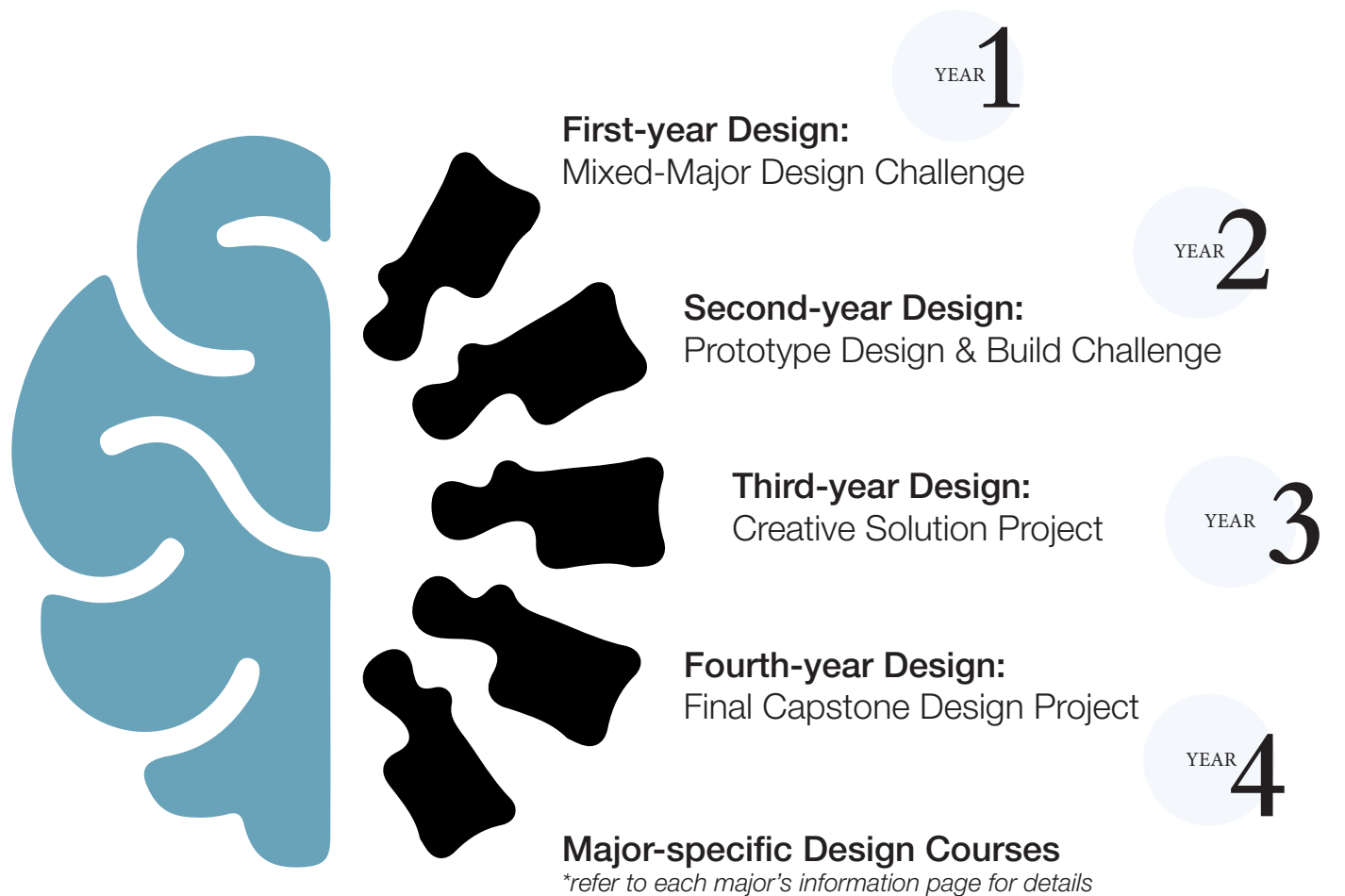


### Gain essential work experience during your degree!

- The University of Guelph offers Co-op opportunities for all seven engineering majors.
- Co-op work terms commence during the summer of your second year, providing paid work experience. Throughout your studies, you will complete a total of three work terms, accumulating 24 months of valuable work experience. The 8-month work terms are highly preferred by employers due to the extensive learning opportunities and significant contributions you can make to the company.
- Co-op work terms are not limited to local companies; you have the chance to work internationally in places like Australia or Europe, broadening your global exposure and enhancing your skill set.

# THE INTERDISCIPLINARY DESIGN SPINE

At the University of Guelph, you will embark on a journey of unparalleled collaboration, setting the stage for your future as an engineer. Working alongside your peers from various engineering disciplines, you will explore the boundaries of creative design and innovation.



# BIOLOGICAL

**Biochemical and bio-environmental principles  
+ Sustainable bio-industrial innovation**

**With elements of**



Biochemical Engineering



Food Processing



Environmental Sustainability

## Biological Design Courses

- Bioreactor Design
- Food Processing Engineering Design
- Bio-Instrumentation Design
- Biological Wastewater Treatment Design
- Engineering Sustainability in Food and Agriculture

## Our students have worked here

- PepsiCo
- Agropur
- Johnson and Johnson
- Novocol Pharma
- Lactalis Canada
- Providence Therapeutics
- Quaker
- Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA)



Improve life by producing safe and abundant food, develop sustainable environmental solutions for agriculture, and design life-enhancing and life-saving products.

# BIOMEDICAL

**Medical innovation +  
Engineering design and problem solving**

**With elements of**



Biomechanics



Biosignals and Medical Imaging

## Biomedical Design Courses

- Bio-Instrumentation Design
- Sampled Data Control Design
- Biomechanical Engineering Design

## Our students have worked here

- Baylis Medical
- Boundless Biomedical Bracing Inc.
- Holland Bloorview Kids Rehabilitation Hospital
- Intellijoint Surgical
- Northern Digital Inc.
- Senova Immunoassay Systems
- Trudell Medical



Apply engineering principles, innovate technologies, and design solutions to improve human health and quality of life

# COMPUTER

Designing computing machines +  
Hardware/software design

Improving life through advancing computer technologies

With elements of



AI and Robotics



Software Design



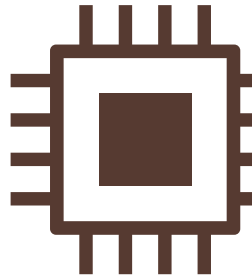
Circuit Design



Internet of Things

## Computer Design Courses

- System Analysis and Design in Applications
- Real-Time Systems Design
- Very Large Scale Integration (VLSI) Digital Design



## Our students have worked here

- Amazon
- General Dynamics
- ecobee
- Advanced Micro Devices (AMD)
- Capco
- Rogers Communications



# SYSTEMS AND COMPUTING

With elements of



Control Systems



Biomedical



Embedded  
Systems



Robotics &  
Mechatronics

Systems thinking +  
Mechatronics and software development

Use systems thinking to design computer-based systems  
that integrate knowledge gained from various disciplines

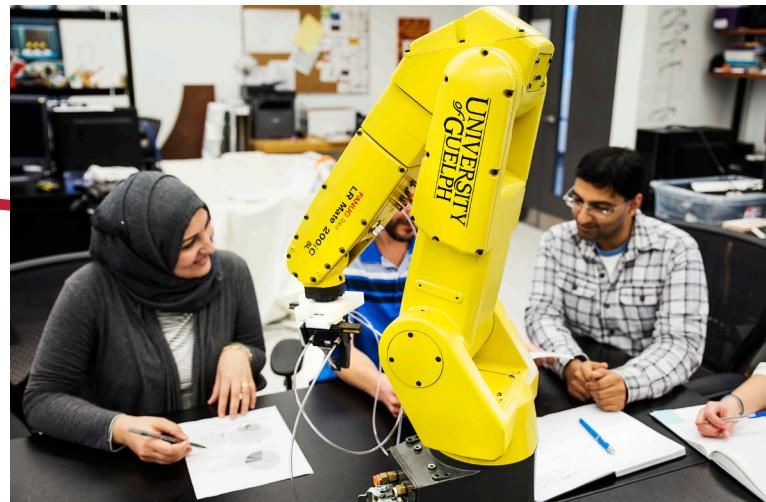
## Systems and Computing Design Courses

- Mechatronic Systems Design
- Digital Process Control Design
- Bio-Instrumentation Design
- Real-Time Systems Design
- Embedded System Design



## Our students have worked here

- Thales Rail Signalling Solutions Inc.
- ATS Automation Tooling Systems Inc.
- Indigo
- Sonova





# ENVIRONMENTAL

Designing for sustainable development +  
Minimizing environmental impact

With elements of



Remote Sensing / GIS



Soil Remediation



Air Emission Control



Watershed Systems



Water / Wastewater Treatment

Advocate for local and global change by  
working to improve life on our planet

## Environmental Design Courses

- Watershed Systems Design
- Urban Water Systems Design
- Biological Wastewater Treatment Design
- Atmospheric Emission Control

## Our students have worked here

- Environment Canada
- Triton Engineering Ltd.
- Conservation authorities
- Stantec
- GHD Group



# WATER RESOURCES

Civil and environmental engineering +  
Sustainable water resources management

Designing solutions to local and global  
challenges surrounding water

With elements of



Water Conservation



River Restoration



Stormwater Management



Meteorology and Geology

## Our students have worked here

- CF Crozier & Associates
- GHD Group
- Municipal engineering offices
- Conservation authorities
- Environment and Climate Change Canada
- R.J. Burnside & Associates Ltd.

## Water Resources Design Courses

- Watershed Systems Design
- Soil-Water Conservation Systems Design
- Urban Water Systems Design
- Life Cycle Assessment for Sustainable Design





# MECHANICAL

With elements of

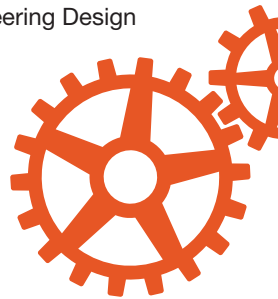


## Mechanical Design Courses

- Machine Design
- Mechatronic Systems Design
- Manufacturing Systems Design
- Digital Process Control Design
- Sustainable Energy Systems Design
- Computer Aided Design and Manufacturing
- Biomechanical Engineering Design

## Our students have worked here

- Magna
- Linamar
- GM, Ford, Toyota
- Bombardier
- Ontario Power Generation
- Tigercat Industries Inc.
- Sleeman Breweries



## Women in Engineering

In 2022, the Doody Family Chair for Women in Engineering was established through a generous contribution from Brian and Diana Doody. This endowment marked the latest and most substantial in a series of philanthropic investments made by the Doody Family to the University of Guelph. Brian and Diana, retired engineers from Waterloo, ON, have a personal connection to the university as they are the proud parents of Laura Ranieri (nee Doody; B.ENG '09), whose exceptional undergraduate experience at Guelph's School of Engineering served as one of the inspirations for their support towards this Chair.

The generous gift from the Doody Family will be matched in full by the College of Engineering and Physical Sciences, School of Engineering, and the President's Office. **This combined support will enable the activities of the Doody Family Chair for Women in Engineering for at least the next 15 years, fostering an environment of empowerment and advancement for women in the field of engineering.**



*Dr. Jana Levison, PhD, P.Eng., holds the prestigious position as the inaugural Doody Family Chair for Women in Engineering. Dr. Levison also serves as an esteemed Associate Professor in Water Resources Engineering at the University of Guelph.*

Energy, manufacturing,  
mechatronics engineering  
+  
Efficient mechanical processes

Apply innovative design and engineering principles  
to the world around us and improve quality of life



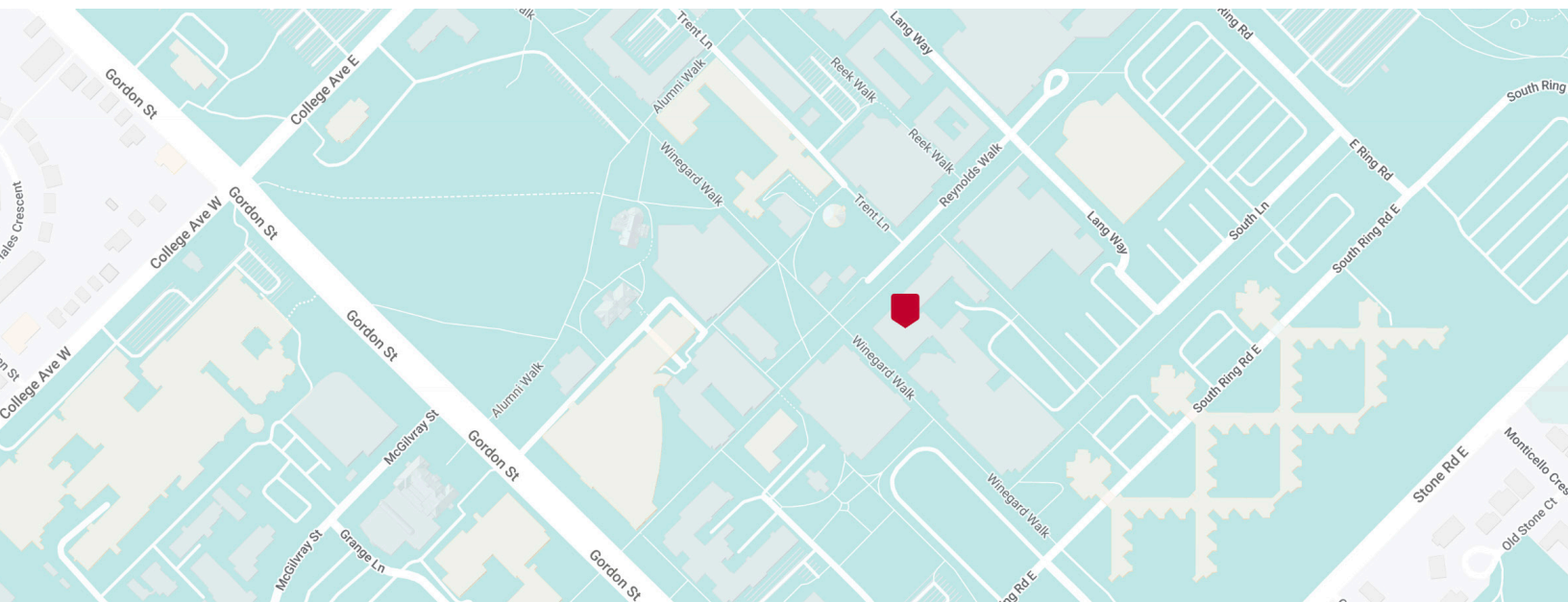
## Visit us on Campus!

**School of Engineering, University of Guelph**  
Thornbrough Building, 50 Stone Rd E  
Guelph, Ontario

## Book a One-on-one Tour of Engineering\*

Fill out the online booking form at [uoguelph.ca/engineering/events/tours](https://uoguelph.ca/engineering/events/tours)

*\*Engineering buildings only, dates requested are not guaranteed and depend on availability.*



## Can't make it to campus?

Check out our 360° views of the Engineering facility here!



## Admission Average

Cut-off range: 84 - 89%\*

*\*Estimated cut-off range reflects an average across all seven of our majors and serves as a reference based on admission averages from previous years. However, please note that the exact cut-offs for the current cycle will be determined by the volume and quality of applications received, as well as the availability of program spaces. It is essential to understand that Co-op averages often surpass the estimated cut-off ranges. Possessing an admission average within the estimated range does not guarantee an offer of admission.*

## Admission Requirements\*

- English (ENG4U)
- Advanced Functions (MHF4U)
- Calculus and Vectors (MCV4U)
- Physics (SPH4U)
- Chemistry (SCH4U)
- 1 additional course

*\*All must be at the 4U/M level.*

*While not required, **biology** is recommended for the following majors: Biological Engineering, Biomedical Engineering, Environmental Engineering and Water Resources Engineering.*

*Additionally, a **knowledge or understanding of programming** is recommended for Computer Engineering and Engineering Systems & Computing.*

### Gryphon statue Iron Ring Day

*In March 2018, as a playful gesture, the graduating class invited the Gryphon to participate in the Ritual of the Calling of an Engineer, marking the completion of their four-year journey together. Since then, a heartwarming tradition has emerged, with the Gryphon being presented with the Iron Ring each year to commemorate and celebrate the achievements of every graduating class.*

## Attend our fall events!

- 🍁 Fall Preview Day
- ⚙️ Science and Engineering Sunday

**Find dates and details here:**  
[admission.uoguelph.ca/connect-with-us](https://admission.uoguelph.ca/connect-with-us)

## Follow U of G Engineering!

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- 🌐 /company/guelphsoe

## Have Questions?

Contact our recruitment officer:

- ✉️ [enginfo@uoguelph.ca](mailto:enginfo@uoguelph.ca)
- 📞 519.824.4120 ext. 52433
- 🌐 [uoguelph.ca/engineering](https://uoguelph.ca/engineering)



IMPROVE LIFE.