SYSTEMS DESIGN ENGINEERING

Solving engineering problems always involves the modification or creation of systems. In this program, you'll examine ecological, transportation, physiological, energy, and communication systems and through specialized courses, you'll learn to develop innovative solutions to the problems you uncover.

In Systems Design Engineering, you'll start by developing a foundation of basic engineering concepts, emphasizing on design, creativity, and systems thinking. This program has the widest range of upper year electives, allowing you to focus your studies in the area you enjoy most, including biomechanics, robotics, environmental systems, artificial intelligence, and more. Top it off with hands-on learning opportunities and two years of work experience, and you'll have a one-of-a-kind degree that can open doors in many areas of engineering!

uwaterloo.ca/systems-design-engineering

200+ technical electives to choose from

98.3% of Systems Design Engineering students found co-op jobs in 2021

YOUR FIRST YEAR

FIRST TERM

- Communications in Systems Design Engineering – Visualization/Written and Oral
- Calculus 1
- Engineering Math
- Digital Computation
- Introduction to Design
- Physics 1 (Statics)

SECOND TERM

- Calculus 2
- Matrices and Linear Systems
- Human Factors in Design
- Digital Systems + Lab
- Data Structures and Algorithms
- One Complementary Studies Elective*

*Complementary studies electives offer instruction in the social sciences and humanities, building knowledge of the impact technology has on society.

KICK-START YOUR IDEAS – MIOVISION

Co-founded by Systems Design Engineering grad Kurtis McBride, MioVision uses a combination of hardware and software to analyze traffic conditions in real-time, then adjust traffic lights to improve the flow of vehicles. The flexible programming and entrepreneurial culture in Systems Design Engineering allowed Kurtis to explore different opportunities and incubate his interest in business during his undergrad here. In early 2018, MioVision raised $15 million in additional funding and have now moved into Catalyst137: Waterloo's Hub for IoT.

UNIVERSITY OF WATERLOO

CO-OP

Waterloo offers the

WORLD'S LARGEST CO-OP PROGRAM

CO-OP AT WATERLOO = REAL WORLD EXPERIENCE

You'll have an unrivalled opportunity to gain paid work experience before you even graduate. We'll help you navigate job applications, résumés, and interviews; you'll have the added benefit of trying out different roles and/or industries to find the one that fits you while building your work experience and reinforcing your in-class learning out in the real world. It all adds up to a competitive advantage after graduation. Systems Design Engineering students are part of the Stream 4 sequence.

STREAM 4 STUDY AND CO-OP SEQUENCE

YEAR	TERM	STREAM 4
1	Fall	Study (1A)
	Winter	Work
	Spring	Study (1B)
2	Fall	Work
	Winter	Study (2A)
	Spring	Work
3	Fall	Study (2B)
	Winter	Work
	Spring	Study (3A)
4	Fall	Work
	Winter	Study (3B)
	Spring	Work
5	Fall	Study (4A)
	Winter	Study (4B)

Fall term: September to December
Winter term: January to April
Spring term: May to August

BEYOND THE CLASSROOM

As a Waterloo Engineer, it's easy to get in on the action. You can join the Engineering Society, make a difference with Engineers Without Borders, or apply your studies with a student design team. If you have any questions about student life or want to shadow a current student for a day, our Engineering Ambassadors can help!

uwaterloo.ca/engineering-student-ambassadors

OUT IN THE WORLD

Solutions to problems that impact both technology and society must leverage a diverse set of perspectives from multiple domains. Developing these solutions are where systems design engineers shine! These engineers can work on just about any project, including big data analysis, developing alternative energy sources, or creating human-machine interfaces.

EXPLORE YOUR INTERESTS

Our program lets you specialize based on your interests:

- Human factors engineering
- Intelligent systems engineering
- Societal and environmental systems
- Systems modelling and analysis
- Biomedical systems

A DESIGN COURSE every term

EMPLOYMENT OPPORTUNITIES

- Project manager
- User experience designer
- Transportation planner
- Data engineer
- Product developer
- Business analyst

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