ELECTRICAL ENGINEERING

Create tomorrow’s information, power, and energy tech. Electrical engineers develop much of today’s technology, including cellular networks, television, computers, and energy distribution. In this program, you’ll explore electronics, physics, and electromagnetism and use them to design a wide range of devices powered by electricity – developing them from concept to reality.

In first year courses, you’ll develop a strong foundation in mathematics, science, and computing with a focus on engineering science and design. In upper years, you’ll dive deeper into these concepts with courses in power electronics, microwave and photonic systems, electronic devices, digital communications, and control systems. Top it off with two years of work experience and a fourth year design project, and you’ll be ready to create the next generation of smartphones, generators, and energy systems.

YOUR FIRST YEAR

First Term
- Fundamentals of Programming
- Classical Mechanics
- Communication in the Engineering Profession
- Engineering Profession and Practice
- Linear Algebra
- Calculus 1

Second Term
- Electricity and Magnetism
- Discrete Mathematics and Logic 1
- Digital Circuits and Systems
- Linear Circuits
- Engineering Economics and Impact on Society
- Calculus 2

KICK-START YOUR IDEAS

We provide the support you need to bring your ideas to life. This includes the Sedra Student Design Centre, the world’s largest free incubator space (Velocity), our fourth-year Capstone Design project, the Enterprise Co-op program, and funding opportunities to help get your business off the ground.
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. Electrical Engineering students are part of the Stream 4F sequence.

STREAM 4F STUDY AND CO-OP SEQUENCE

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<tr>
<th>YEAR</th>
<th>TERM</th>
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<tbody>
<tr>
<td>1</td>
<td>Fall</td>
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<td>Winter</td>
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<td>2</td>
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<td>Work</td>
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<td></td>
<td>Winter</td>
<td>Study (4B)</td>
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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
Electrical engineers power our world and the devices in it. It’s a very wide field, touching on everything from tiny microprocessors to massive supercomputers. These engineers work on everything from consumer products like the smartphones in our pockets to the electrical systems on commercial aircrafts. They also develop medical tech like surgical robots that help surgeons perform safer, minimally invasive surgeries. Almost every industry has a place for electrical engineers!

EXPLORE YOUR INTERESTS
Our program lets you specialize based on your interests:
• Computer architectures and embedded systems
• Control and robotics
• Electronic devices, circuits, and systems
• Energy distribution, motors/generators, and power electronics
• Microwave/RF/photonics devices and systems
• Networks and distributed computing
• Signal processing
• Embedded software

EMPLOYMENT OPPORTUNITIES
• Telecommunication system development
• Satellite communications
• Microelectronics engineering (in computers and smartphones)
• Household appliance design
• Robotics engineering

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CONNECT WITH US
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Relationship between Electrical Engineering and other engineering disciplines