

employability.

FACULTY Engineering
PROGRAM Electrical Engineering

► Overview

Electrical Engineering is an immense field with hundreds of diverse applications. This program develops engineers who know how to apply electronic and electromagnetic/optical design principles to design, build and test analog or digital devices, circuits and systems. These would be used for processing, communication and storage of information; for distribution, conversion and storage of energy; and process automation or robotics.

By their choice of elective courses, students in this program specialize in broad domains that include:

- Electronic, RF and optical devices, circuits and fabrication
- Communications, control and energy systems
- Computer hardware and software

► Program Objective

This fast-growing field involves processing, communicating and storing information, distribution, conversion and storing of energy and process automation and robotics. The Electrical Engineering program at Waterloo is designed to develop electrical engineers who have the solid knowledge and skills to meet this continually expanding environment. Students have the benefit of leading-edge technology in classrooms and labs as they learn how to deal with the transfer of energy and information.

► Program Content

The Electrical Engineering curriculum teaches the fundamental physical and engineering sciences. It consists of prescribed core courses augmented by Technical and Complementary Studies electives.

The high level course offerings include:

- Digital Communications and Signal Processing
- Electronic Circuits
- Modeling and Control of Electric Drives
- Electromagnetic Fields
- Communication Systems
- Signals and Systems
- Analog Control Systems
- Engineering Design Concepts
- Wireless Communications
- RF Microelectronics
- Computer Networks and Security
- Microwave Engineering
- Integrated VLSI Systems
- Fourth year Engineering Design Project
- Photonic Communications Systems and Devices
- Robot Dynamics and Control

The Business Advantage

► **Key Benefits to Employers**

Students in the Waterloo Electrical Engineering program bring the benefits of hands-on experience with leading-edge equipment and technology in classrooms and labs. Many have related experience gained from previous work terms, together with technical writing experience gained from completing work term reports.

Valuable skills and attributes include:

- Ability to troubleshoot and analyze electrical/electronic circuits
- Solid problem-solving, analytical and design skills
- Computer programming skills
- Trained in technical presentations
- Trained in engineering professionalism, ethics and critical thinking through the PDENG courses
- Bright and highly motivated

► **Employment Examples**

Job titles and areas of experience include:

- Systems Developer
- R & D Design Engineering
- DSP Applications Developer
- Display & Video Systems Engineering
- Hardware Systems Design Assistant
- Analog IC Design
- Electrical & Power Design
- Electrical Construction Inspector
- Webpage Designer
- Power Plant Designer
- Communication System Manager
- Interactive Services Technician
- Quality Assurance Student
- Computer Technician
- Industrial Project Coordinator
- Test Analyst
- Network Support
- Application Developer
- Hardware Analyst
- Computer Programmer/Analyst
- Electric Project Designer
- Software Developer
- Electrical Engineering Assistant
- Software Validator
- Network Specialist
- IT Support Operator

Engineering – Electrical Engineering (Stream 4) Work/Study Sequence			
	Fall (Sept.-Dec.)	Winter (Jan.-April)	Spring/Summer (May-Aug.)
Year One	Courses	Work Term I	Courses
Year Two	Work Term II	Courses	Work Term III
Year Three	Courses	Work Term IV	Courses
Year Four	Work Term V	Courses	Courses
Year Five	Work Term VI	Courses	

Engineering – Electrical Engineering (Stream 8) Work/Study Sequence			
	Fall (Sept.-Dec.)	Winter (Jan.-April)	Spring/Summer (May-Aug.)
Year One	Courses	Courses	Work Term I
Year Two	Courses	Work Term II	Courses
Year Three	Work Term III	Courses	Work Term IV
Year Four	Courses	Work Term V	Courses
Year Five	Work Term VI	Courses	

“The switch design group at S&C Electric Canada has for years consistently hired Co-op students from Waterloo to work on special projects. We have been very happy with the quality of students from the Co-op program. We continue to be impressed by the student’s professionalism, ability to quickly adapt to our business systems and software, and their eagerness to tackle the work we assign them. The Co-op students have become an integral part of the department and our business.”

– SANDRA FERREIRA, Director Human Resources, S&C Electric Canada

Waterloo Co-op Student Salary Information

Our annual earnings information tables provide a helpful summary of what other organizations have paid UW Co-op students during their work terms. You can find the latest information on our website: www.cecs.uwaterloo.ca/employers/salary.php

To find out more about how the Waterloo Co-op Program can work for you, please contact us.

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