Electrical Engineering

Electrical engineering is a diversified discipline concerned with the analysis, design and manufacture of a huge variety of devices, systems and processes involving electricity.

In recent years, the field of electrical engineering has grown and branched out into a number of specialized categories, including power generation and transmission systems, emerging sustainable energy systems, motors, batteries and control systems. Electrical engineering also includes electronics, which has branched into an even greater number of subcategories such as wireless systems, telecommunications, remote sensing, signal processing, digital circuits, instrumentation, audio, video and optoelectronics. Interdisciplinary areas like biomedical engineering and robotics are also included in the discipline of electrical engineering. The electrical engineering undergraduate program at Memorial University prepares students and graduates to work in a wide variety of roles throughout these fields.

Co-operative Education Opportunities

Co-operative education experiences of students within the Department of Electrical Engineering have included a wide range of industries and opportunities. Examples of what our students can provide to employers include:

Electronics – working with electronic circuits such as resistors, capacitors, inductors, transistors and diodes;

Computer – designing computers, computer hardware and software development;

Offshore oil and gas – evaluating instrumentation, control systems, electrical systems and equipment for remote offshore assets;

Power – dealing with electricity and the design of related electrical devices such as transformers, generators, motors and power electronics;

Instrumentation and controls – designing controllers and measuring devices, using micro-controllers, programmable logic controllers, digital signal processors and electrical circuits;

Telecommunications – supporting telecommunication and computer network industries with network planning, design and computer system maintenance;

Medical and manufacturing industries – working with electrical systems, fibre-optics and microwave and IOT in medical and manufacturing applications

Public utilities – assisting system engineers and control system designers;

Research and development – performing research, design, development and testing in broad areas of electrical systems designs, systems innovation and next generation technologies; and

Robotics – designing and troubleshooting autonomous and remotely operated systems.

MEMORIAL UNIVERSITY

CO-OPERATIVE EDUCATION
Faculty of Engineering and Applied Science

Electrical Engineering Program Organizational Chart

Term	Fall	Winter	Spring
Year 1	**Engineering One**		
	Engineering Statics Introduction to Programming Engineering Graphics and Design Mechanisms and Electric Circuits	Physics Chemistry Mathematics English Professional Development Seminars	Work Term 1* *If students complete engineering one requirements within first two terms.
Year 2	**Academic Term 3** Engineering Professionalism I Engineering Mathematics Circuit Analysis Digital Logic Foundations of Programming Physics of Device Materials	**Work Term** Work Term 1 Work Term 2	**Academic Term 4** Advanced Calculus for Engineering Introduction to Systems and Signals Electromechanical Devices Electronic Circuits I Microprocessors
Year 3	**Work Term** Work Term 1 Work Term 2 Work Term 3	**Academic Term 5** Probability and Random Processes Electrical Engineering Design Basic Electromagnetics Control Systems I Electronic Circuits II	**Work Term** Work Term 2 Work Term 3 Work Term 4
Year 4	**Academic Term 6**** Electromagnetic Fields Rotating Machines Industrial Controls and Instrumentation Communication Principles One technical elective	**Work Term** Work Term 3 Work Term 4 Work Term 5 (Optional)	**Academic Term 7** Electrical Engineering Design Project I Introduction to Digital Signal Processing Three technical electives
Year 5	**Work Term** Work Term 4 Work Term 5 (Optional) Work Term 6 (Optional)	**Academic Term 8** Engineering Professionalism II Filter Synthesis Electrical Engineering Design Project II Two technical electives	** Start of Technical Stream courses: 1. Biomedical

More information ...

Electrical Engineering Departmental Office
709-864-2707
www.mun.ca/engineering/ece

Course specific Information