

Program Options in Electrical Engineering

www.ee.ryerson.ca/-eeoptions

RYERSON UNIVERSITY

2009-10

● Energy Systems ● Multimedia Systems ● Microsystems ● Robotics & Control Systems

With the emerging trend nationally and globally in mind, and considering the faculty expertise and the laboratory facilities in place, the Department of Electrical and Computer Engineering at Ryerson offers modern, relevant, and efficient curriculum with four new program options in the B.Eng. Electrical Engineering program. In addition the regular program with no particular option is also available for students to choose.

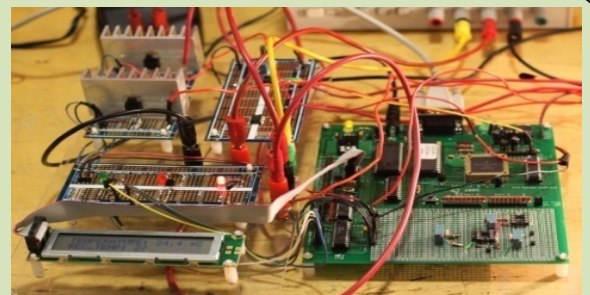
Energy Systems Option – One of the most important areas of engineering where topics such as alternative energy sources such as wind energy and solar panels, energy conversion, efficiency and green power take centre stage.



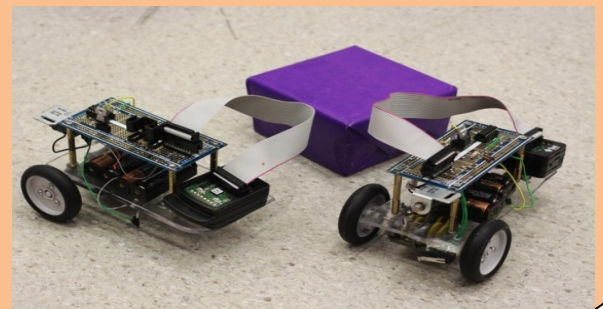
Multimedia Systems Option – This option deals with the study of digital images, video, audio and multimedia, signal processing and communications, and will focus on theory, implementation, impact and convergence which is evident in current cutting edge digital technologies and consumer products.



Microsystems Option – This important option focuses on electronics and integrated circuit design in the nanoscale era which can enable the creation of system-on-chip where hundreds of millions of transistors can be integrated on a single chip. Theory will be supported by laboratory work using industry-class software and equipment.



Robotics and Control Systems Option – Control systems are found in a broad range of applications, from aircraft to spacecraft to automobiles to robots. This option focuses on the design and implementation of control systems and their application to robotics.



For more information on employment opportunities, sample projects, related industries and graduate study possibilities, visit www.ee.ryerson.ca/-eeoptions or email ee_options@ee.ryerson.ca

This brochure is for information purpose only. For up-to-date information on the program, see the undergraduate calendar.

Energy Systems Option*

ELE 637 Energy Conversion

One of: ELE 604 Sensors and Measurement,
ELE 632 Signals and Systems II

ELE 700 Engineering Design

ELE 746 Power Systems Analysis

ELE 754 Power Electronics

ELE 847 Advanced Electromechanical Systems

CEN 800 Law and Ethics in Engineering Practice

ELE 800 Design Project

ELE 806 Alternative Energy Systems

ELE 846 Power Systems Control

ELE 864 Electric Drives

Multimedia Systems Option*

ELE 632 Signals and Systems II

One of: ELE 604 Sensors and Measurement,
ELE 637 Energy Conversion

ELE 700 Engineering Design

ELE 725 Basics of Multimedia Systems

ELE 792 Digital Signal Processing

One of: COE 768: Computer Networks,
ELE 745: Digital Communication Systems

CEN 800 Law and Ethics in Engineering Practice

ELE 800 Design Project

ELE 882 Intro to Digital Image Processing

ELE 888 Intelligent Systems

One of: COE 865 Advanced Computer Networks,
ELE 815 Cellular Mobile Communications
ELE 885 Optical Communication Systems

Microsystems Option*

ELE 604 Sensors and Measurement

One of: ELE 632 Signals and Systems II,
ELE 637 Energy Conversion

ELE 700 Engineering Design

ELE 704 CMOS Analog Integrated Circuits

ELE 734 Low Power Digital Integrated Circuits

ELE 744 Electronics and Instrumentation

CEN 800 Law and Ethics in Engineering Practice

ELE 800 Design Project

ELE 804 Advanced Electronics III

ELE 813 VLSI Circuit Testing

ELE 863 VLSI Systems

Robotics and Control Systems Option*

ELE 632 Signals and Systems II

One of: ELE 604 Sensors and Measurement,
ELE 637 Energy Conversion

ELE 700 Engineering Design

ELE 709 Real-time Computer Control System

ELE 792 Digital Signal Processing

ELE 829 System Identification

CEN 800 Law and Ethics in Engineering Practice

ELE 800 Design Project

ELE 809 Digital Control System Design

ELE 869 Robotics

ELE 888 Intelligent Systems

Program Details

Accreditation

These program options will be in addition to the regular B.Eng. in Electrical Engineering accredited by the Canadian Engineering Accreditation Board (CEAB). The options are effective for students entering their sixth semester from Winter 2009.

Flexible Offering

It should be noted that the first five semesters of the program are common to all the students in Electrical Engineering program. It is only in the sixth semester that a student will decide on an option, if he or she wishes to pursue one. In the sixth semester, students decide on **two of the three courses for an option**. This flexibility also ensures that even at the end of the sixth semester if a student is planning to switch an option, he or she can do so without taking any additional courses or spending an additional semester provided the student has taken the required core courses.

Curriculum

All the students in Electrical Engineering program will take the following 6th semester courses: (i) ELE635 Communication Systems, (ii) ELE639 Control Systems and (iii) MEC511 Basic Thermodynamics and Fluids, and the other courses in 6th and subsequent semester courses as shown in the list on the left side for different options. In addition to the courses listed here, students need to take the necessary Professional and Liberal Electives. See the calendar or visit www.ee.ryerson.ca/undergraduate/current/ee.html for more details. The options will also lead to a better informed capstone design project in their 4th year of study.

Will Options Make Me An Expert?

Options are meant to give students increased exposure to an area that they find interesting, not to make them experts. Students have been asking what courses to take if they liked one area more than another, so we have addressed this by creating options for their informed selection.

How to Apply?

Interested students can select the desired option in the RAMSS system.

Contact

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*In addition to the listed courses, students need to take the necessary Professional and Liberal Electives.

For more information on employment opportunities, sample projects, related industries and graduate study possibilities, visit www.ee.ryerson.ca/~eeoptions or email ee_options@ee.ryerson.ca