

Electrical Engineering

Department of Electrical and Computer Engineering



What is Electrical Engineering?

Electrical engineering is a diverse, fast growing and vibrant field of engineering. It includes power generation, transmission and distribution, control and communication systems, electronics, robotics and many others. The profession is represented in virtually all sectors of modern industry. Electrical engineers are involved in the process of creating, developing, integrating, sharing, and applying knowledge about electrical, computer and information technologies and sciences for the benefit of humanity.

Western's Electrical Engineering Undergraduate Program

Students in our program learn how to harness electrical energy for human benefit. Use of electrical energy is versatile and our program covers a broad range of applications including robots, computers, telecommunications, digital electronics, and electric motors, just to name a few. After the common first year, students pursue the next three years in Electrical Engineering. In fourth year, students may choose from a range of technical electives in the Electrical Engineering Option or they may choose to specialize in one of the following options:

Wireless Communication Option

Wireless Communication is one of the most dynamic areas of industrial development and research. Our program allows students to explore the operation and design of communication systems. Courses in theory and design of Communications Systems, Antennas, Data Networks and Digital Signal Processing form the core of this option.

Power Systems Option

The world is looking to develop sustainable, environmentally friendly and diversified sources of electrical energy. There is also a significant demand in the power generation and distribution industry for renewal and expansion of technical personnel. This option offers students a solid background in design and the operation of conventional power systems, as well as insight into modern and alternative sources of electric power generation. We offer the only program in Canada with courses in Power System Protection.

Biomedical Signals and Systems Option

As society continues to age there is a higher demand for intensive upgrades and modernization of medical equipment, thus resulting in a greater need for engineers specializing in design, manufacturing and servicing of such devices. This option offers students a solid background in the field of microelectronics, signal processing, imaging and biomedical systems.

Electrical Engineering

Shape your future with Western Engineering Plus

Combined Degrees

Electrical Engineering and Management

After two years in Engineering, students apply to the Richard Ivey School of Business. If admitted to Ivey, students take a combination of HBA courses and Electrical Engineering courses for the next three years. At the end of five years, students graduate with both BESC and HBA degrees.

Electrical Engineering and Medicine

Students apply for this option in second year. The course load in second and third year of Engineering studies is slightly heavier with this option to complete all required Engineering courses. Students apply to the Schulich School of Medicine & Dentistry for admission to the Medicine program in their third year. MCAT's must be written before this time. Three spots in Western's first year Medicine program are reserved for Engineering students. If a student is admitted to Medicine after three years in Engineering, she/he will complete the Medicine program for the next four years in addition to the Fourth Year Design project. At the end of seven years, students graduate with both BESC and MD degrees.

Electrical Engineering and Law

After three years in Electrical Engineering, students apply to Western Law. Students are required to write the LSAT examinations prior to this time. For the next three years, students take a combination of Law courses and Electrical Engineering courses. At the end of six years, students graduate with both BESC and LLB degrees.

Concurrent Degrees

Many students in Electrical Engineering enhance their education by completing concurrent degrees. Normally, a student would choose to do a concurrent degree with a major module in the Faculty of Science, Social Science or Arts and Humanities such as Environmental Science, Computer Science, Psychology, or English. Combining both programs allows students to graduate with two degrees in less time than it would take to complete each degree independently.

Co-op Programs

Our Internship and Summer Engineering Co-op programs provide students with opportunities to gain practical experience. The 12-to 16-month internship is available to students following their third year of study. Summer co-ops provide technical work experience during the summer months and are available to qualifying students at each level of undergraduate studies. Engineering students with practical experience are usually the first to secure employment following graduation.

Accelerated Master's Program

This program is offered to current third-year Western Engineering students. Applicants must have an average grade of 80 per cent or higher (based on their second and third year courses). The Accelerated Master's Program allows students to receive an MESC within one year of receiving their BESC.

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