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Spencer Engineering Building; Thompson Engineering Building; Claudette MacKay-Lassonde Pavilion, Three C+

**Dean: A. Hrymak, P. Eng.**

**Associate Dean (Undergraduate Studies): F. Michael Bartlett, P. Eng.**

## Academic Counselling

Spencer Engineering Building 2097; 519-661-2130

Mondays and Wednesdays 9:00 am - 11:30 am and 2:00 pm - 3:30 pm by appointment.

## Admission Requirements

### Required

Six Grade 12U or M level courses including:

- ▶ English (ENG4U)
- ▶ Chemistry (SCH4U)
- ▶ Physics (SPH4U)
- ▶ Advanced Functions (MHF4U)
- ▶ Calculus and Vectors (MCV4U)
- ▶ One additional 4U or 4M level course from any discipline (not co-op) for a total of six courses.

### Degree Offered

- ▶ Bachelor of Engineering Science (BESc): 4-year

### Combined Programs Available

- ▶ Engineering and Business
- ▶ Engineering and Law
- ▶ Engineering with Major Modules from the Faculties of Science, Social Science or Arts and Humanities
- ▶ See [www.eng.uwo.ca](http://www.eng.uwo.ca) for more information

### Programs Available

- ▶ Chemical Engineering
- ▶ Civil Engineering
- ▶ Computer Engineering
- ▶ Electrical Engineering
- ▶ Green Process Engineering
- ▶ Integrated Engineering
- ▶ Mechanical Engineering
- ▶ Mechatronic Systems Engineering
- ▶ Software Engineering
- ▶ Engineering Leadership and Innovation Certificate

### Graduate Degrees

- ▶ Master of Engineering (MEng)
- ▶ Master of Engineering Science (MESc)
- ▶ Doctor of Philosophy (PhD)

### Engineering Co-Op Programs

Engineering students may wish to partake in the Internship Program or the Summer Engineering Co-Op Program or both. Students enrol online in the fall of the year in which they wish to participate.

### Internship Program

Western's Internship Program allows qualified students the opportunity to pursue career-related positions in the private or public sector for 12 to 16 months after completion of their second last year in the Engineering Program. This Internship Program is available to students in all undergraduate programs in the Faculty. Students who accept an Internship placement will receive transcript notations (ES3351, ES3352, ES3353 and ES3354) depending on the length of their work term. Upon graduation, student transcripts will identify their degree as Bachelor of Engineering Science in XXX with Professional Internship. In addition to the practical experience and competitive salary gained through the internship, a maximum of 12 months of this employment may be used towards the four years experience required for licensing as a Professional Engineer in the Province of Ontario.

Any student who is completing the second last year of an Engineering program and has a 65% average may enrol in the Internship Program. Please note that participation in this program will delay graduation by one year. A special tuition is charged to students in the Internship Program.

### Summer Engineering Co-Op

The Summer Engineering Co-Op Program assists undergraduate students to find career-related summer employment. This program complements the Internship Program and will allow students the opportunity to gain practical work experience during the summer months.

This optional program is available to all full-time undergraduate students in the Faculty of Engineering who enrol with Engineering Career Services and maintain a 65% average, and are returning to Engineering full-time during the following academic year. Students interested in the Summer Engineering Co-Op Program must apply on-line in the fall of the year in which they wish a summer placement. Students who accept a summer engineering co-op placement will receive a transcript notation (ES 1150, ES 2250, ES 3350, ES 4450 – depending on their year of registration) in the summer term in which they participate. A small administrative fee will be charged for the successful placement in a position.

For more information on Engineering Co-Op Programs see [www.eng.uwo.ca/coop](http://www.eng.uwo.ca/coop) or contact: Engineering Career Services, SEB Room 2086; Western University, London, ON N6A 5B9; 519-661-2111 ext. 88359; [wecareer@uwo.ca](mailto:wecareer@uwo.ca)

### Engineering Excellence Admission Program

Western Engineering will guarantee your acceptance into the engineering program of your choice after first year if you meet the requirements outlined on our website: [www.eng.uwo.ca](http://www.eng.uwo.ca)

### First Year Program

**Full-year courses:** Applied Mathematics 1413, Engineering Science 1050 and Business Administration 1299E.

**Full-year half course:** Engineering Science 1022A/B/Y.

**Half-year courses:** Applied Mathematics 1411A/B, Chemistry 1302A/B, Engineering Science 1021A/B, 1036A/B, Physics 1401A/B, Physics 1402A/B. (Two of the half courses are taken in each term as scheduled).

## Chemical Engineering

Chemical engineering is a versatile discipline broadly based upon physical and life sciences. Today the world faces significant challenges due to increasing populations, air, water and soil pollution, and world-wide energy and food shortages. Chemical engineers are well positioned through their training to address and find solutions to these challenges. The Department of Chemical and Biochemical Engineering at Western is nationally and internationally celebrated for its strong academic program, well renowned award-winning professors and state-of-the-art teaching and research facilities. The Department of Chemical and Biochemical Engineering at Western offers two options for undergraduate students: (1) Chemical Engineering; (2) Biochemical and Environmental Engineering.

## Civil Engineering

Civil and environmental engineers use applied and cutting-edge science to design, build and maintain essential infrastructure such as: housing, airports, roads, bridges, hydro-electric dams, water supply and wastewater treatment systems. Civil engineers also mitigate natural disasters and solve problems that result from industrialization and resource consumption. The Department of Civil and Environmental Engineering at Western is renowned for its excellence, nationally and internationally, due to its outstanding academic curricula, award-winning professors and state-of-the-art facilities. The Department of Civil & Environmental Engineering at Western offers four options for undergraduate students: (1) Civil and Structural Engineering; (2) Civil and Environmental Engineering; (3) Environmental Engineering and International Development; (4) Structural Engineering and International Development.

## Computer Engineering

Computer engineering is the most rapidly evolving discipline in engineering, partially due to the application of computers themselves. Computer engineering deals with the design of hardware elements and building of computer systems of various levels of complexity. These systems may vary from high performance parallel supercomputers to special servers that operate computer networks, to micro devices that will operate the next generation of home appliances. The goal of computer engineering at Western is to provide students with a foundation of knowledge by integrating a variety of theoretical and practical experiences at every level throughout the curriculum. The two Computer Engineering options at Western Engineering are: (1) Electronic Devices for Ubiquitous Computing and (2) Software Systems for Ubiquitous Computing.

## 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. Advances in electrical engineering have transformed Canada into a leading high-tech economy in the world. 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. The Department of Electrical and Computer Engineering at Western offers four options for undergraduate students: (1) Electrical Engineering; (2) Power Systems; (3) Wireless Communication; (4) Biomedical Signals and Systems.

## Green Process Engineering

Engineering has always been a caring profession with a focus on design and innovation to respond to the pressing needs of society. Western's Green Process Engineering program is an emerging discipline that addresses environmentally friendly chemical products and processes by reducing pollutants at the source. It applies innovative process engineering tools to design sustainable and safe chemical processes based on alternative product design and improved

process efficiencies by reducing waste generation. The program also explores alternative sources of energy with reduced carbon emissions. Western's Green Process Engineering program is the first of its kind in Canada. The basic objective of the program is to combine and integrate the fundamental principles of chemical engineering to design commercial products and processes that are safe, economical and environmentally friendly. Some of the distinguishing features of the program include the emphasis on green chemistry, green power, solar and bio-fuel cells, and conversion of waste (such as agricultural byproducts) to bio-diesel and bio-ethanol products.

## Integrated Engineering

Western's Integrated Engineering Program prepares graduates to succeed as leaders in a world where technology is increasingly interdisciplinary. To meet this need, our recently redesigned Integrated Engineering program incorporates fundamentals from several engineering disciplines rather than concentrating on one. Western Integrated Engineering graduates excel in management, are fluent in the languages of multiple engineering disciplines and are cognizant of innovation solutions. Unique in Canada, our Integrated Engineering curriculum incorporates case-method engineering innovation courses plus core courses from civil, chemical, electrical, and mechanical engineering. The program prepares graduates to fill the technological innovation gap through work in almost any industry.

## Mechanical Engineering

Mechanical and materials engineering is one of the broadest engineering disciplines and its products are found everywhere. Mechanical engineers research, develop, design, manufacture, and test tools, engines, machines, robots and other mechanical devices and systems. The Department of Mechanical and Materials Engineering at Western focuses on a broadly based mechanical and materials engineering education that stresses fundamental engineering concepts, contemporary design practices, development of interpersonal skills and interaction with engineering practitioners. Opportunities are available for senior students to participate in real design and construction projects where they can work closely with faculty and industry partners to apply knowledge and leadership skills.

## Mechatronic Systems Engineering

Mechatronics is the combination of mechanical, electrical, computer, control, and systems design engineering to create useful products. The combination of these engineering principles helps generate simpler, more economical, reliable and versatile systems. Our program is unique in its multi-year design focus. Throughout the program, students take core courses in electrical and computer engineering as well as core courses in mechanical and materials engineering. In addition to these core concepts, students receive specialized instruction in mechatronic design principles through a three-year design curriculum, as well as specialized instruction in robotics and advanced sensing.

## Software Engineering

Software engineering is the application of engineering concepts, principles and practices to the development of software systems. It is a disciplined and rigorous approach for developing software systems that range from everyday applications to mission and safety critical applications that are dependable and cost-effective. Software engineering deals with building, maintenance, and the evolution of software systems. It emphasizes the applied aspects of software-based technologies, from idea to final product. Western's program offers a solid foundation in computer hardware and computer networks and explores the technology of computer science.

Graduates acquire the management skills necessary to lead a software team that can engineer software systems that meet specified requirements of industrial quality and professional standards. Teamwork and entrepreneurship are also emphasized in our Software Engineering program. Laboratories are equipped with the latest tools and products used by software engineers in industry.