

# Computer Engineering

Department of Electrical and Computer Engineering



## What is Computer Engineering?

Computer engineering studies the design of hardware elements and the building of computer systems of various levels of complexity. Applications of computer technology range from systems traditionally considered “computers,” such as high performance parallel supercomputers and special servers that operate computer networks to embedded intelligence in systems most people do not view as computers at all, including: cell phones and PDAs, medical equipment like ultrasound and MRI, automotive control systems and video game consoles, just to name a few. All of these applications share the common principles of computer design taught in a computer engineering curriculum.

## Western’s Computer Engineering Undergraduate Program

After the common first year, students pursue the next three years in computer engineering courses.

### *Second Year*

Students take courses such as Applied Mathematics, Computer Science Fundamentals, Basic Electric Circuits Analysis and Design, Basic Electronics Circuits Analysis and Design, Electrical and Analog Electronics Laboratory, Engineering Electromagnetics, Advanced Analog Circuit Analysis and Design, Analog Electronics, Engineering Communications, and Elements of Dynamics and Thermodynamics.

### *Third Year*

Students take courses such as Digital Signal Processing, Analysis and Design of Digital Circuits, Data Structures, Applied Mathematics, Microprocessors and their Applications, Software Tools, Introduction to VLSI, Design and Implementation of Computer Networks, Statistics for Electrical and Computer Engineers, and a Non Technical Elective.

### *Fourth Year*

Students take courses such as Major Design Project, Microcomputers Engineering, Advanced Digital Systems, VLSI and Microelectronics, Computer Architectures, Real Time Systems, Business for Engineers, and Engineering Ethics, Sustainable Development and Law.

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Shape your future with Western Engineering Plus

## Dual Degrees: Combined and Concurrent

Many Western Engineering students enhance their education by completing a dual degree.

Western Engineering offers two types of dual degrees: Combined Degrees (studying with one of Western's other professional schools) and Concurrent Degrees (studying with one of Western's other Faculty's across campus).

Normally, a student would choose to complete 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 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 MEng within one year of receiving their BEng.

