

Computer Engineering

Computer engineering is a fast-changing discipline concerned with the design and analysis of computer systems applied to the solution of practical problems. Memorial University's computer engineering undergraduate program encompasses both computer hardware and software design in applications ranging from telecommunications and information systems (such as the Internet or telephone networks) to instrumentation and robotics.

The work of computer engineers underlies nearly every aspect of our modern technological society, from the hardware and software of laptops, video game consoles and smartphones to image processing in biomedical applications and the control systems in cars and airplanes. Computer engineering combines aspects of computer science and electrical engineering with a focus on the processing (hardware, software and signal processing) and transmission (communications and networking) of information.

Co-operative Education Opportunities

Co-operative education experiences of students within the computer engineering undergraduate program have included a wide range of industries and opportunities. Examples of what our students can provide to employers include:

Computer systems – planning and design of digital hardware and software development;

Information technology – working with software and hardware design engineers;

Telecommunications – providing assistance in the telecommunication and computer network industries in areas such as network planning, design and computer system maintenance;

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

Offshore oil and gas – automating processes in data collection and analysis, applying artificial intelligence to improve efficiency in safety;

Medical and manufacturing industries – programming, developing and testing medical devices for patient applications, optimizing manufacturing processes;

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

Robotics – designing and troubleshooting autonomous and remotely operated systems; and

Electronics – building and testing electronic circuits such as resistors, capacitors, inductors, transistors and diodes.



Computer 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 Discrete Mathematics for Computer Engineering Introduction to Systems and Signals Electronic Circuits I Microprocessors Data Structures
Year 3	Work Term Work Term 1 Work Term 2 Work Term 3	Academic Term 5 Probability and Random Processes Control Systems I Digital Systems Software Design Algorithms: Correctness and Complexity	Work Term Work Term 2 Work Term 3 Work Term 4
Year 4	Academic Term 6** Computer Architecture Communication Principles Communication Networks Software Development Practice One technical elective	Work Term Work Term 3 Work Term 4 Work Term 5 (Optional)	Academic Term 7 Computer Engineering Design Project I Introduction to Digital Signal Processing Concurrent Programming Two technical electives
Year 5	Work Term Work Term 4 Work Term 5 (Optional) Work Term 6 (Optional)	Academic Term 8 Engineering Professionalism II Computer Engineering Design Project II Real-time Operating Systems Two technical electives	** Start of Technical Stream courses: 1. Biomedical

More information ...

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

[Course specific information](#)