Sample Courses
Software Engineering
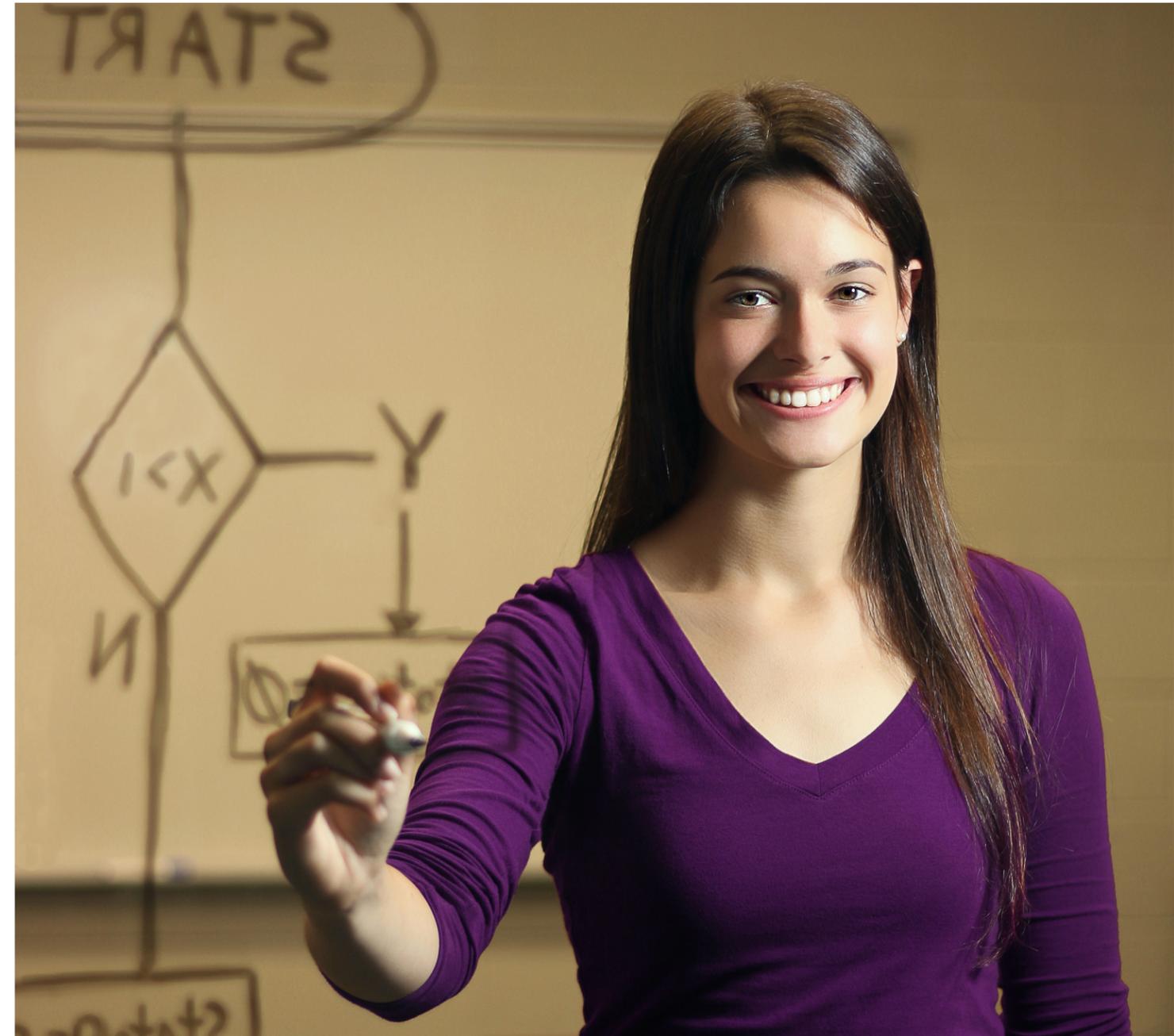
YEAR 2

Term A		Term B	
AM 2270a	Applied Mathematics for Engineering II	AM 2276b	Applied Mathematics for Electrical and Mechanical Engineering III
ECE 2277a	Digital Logic Systems		
SE 2203a	Software Design	ECE 2238b	Introduction to Electrical Engineering
Math 2151a	Discrete Structures for Engineering	SE 2250b	Software Construction
CS 1037a	Computer Science Fundamentals II	SE 2205b	Algorithms and Data Structures
SS 2141a	Applied Probability and Statistics	ES 2211G	Engineering Communications
		One 0.5 non-technical elective from approved list	

YEAR 3

Term A		Term B	
ECE 4436a	Networking: Principles, Protocols, and Architecture	ECE 3375b	Microprocessors and Microcomputers
		SE 3310b	Theoretical Foundations of Software Engineering
SE 3309a	Database Management Systems		
SE 3313a	Operating Systems for Software Engineering	SE 3314b	Computer Networks Applications
		SE 3351b	Software Project and Process Management
SE 3316a	Web Technologies		
SE 3352a	Software Requirements & Analysis	SE 3353b	Human-Computer Interaction
		SE 3350b	Software Engineering Design I

YEAR 4

Term A		Term B	
SE 4450	Software Engineering Design II	SE 4450	Software Engineering Design II
SE 4452a	Software Testing and Maintenance	SE 4455b	Cloud Computing: Concepts, Technologies and Applications
SE 4472a	Information Security		
		ES 4498G	Engineering Ethics, Sustainable Development and the Law
One 0.5 non-technical elective			
Two 0.5 technical electives		One 0.5 non-technical elective	
		Two 0.5 technical electives	

Technical Elective List

ECE 3389a/b	Computer System Design	CS 4482a/b	Game Engine Development
ECE 3390a/b	Hardware/Software Co-Design	CS 4483a/b	Game Design
ECE 4460a/b	Real-Time and Embedded Systems	CS 2034a/b	Data Analytics: Principles and Tools
CS 2101a/b	Foundations of Programming for High Performance	CS 3101a/b	Theory and Practice of High Performance Computing
CS 3346a/b	Artificial Intelligence I	CS 3342a/b	Organization of Programming Languages
CS 3388a/b	Computer Graphics I	SE 4470a/b	Selected Topics in Software Eng. I
CS 4442a/b	Artificial Intelligence II	SE 4471a/b	Selected Topics in Software Eng. II

NOTE: Not all technical electives may be offered each year.

Western Engineering

Software Engineering

Western Engineering

What is Software Engineering?

Software engineering is a systematic and disciplined approach to developing software. It applies both computer science and engineering principles and practices to the creation, operation, and maintenance of software systems. Software engineers specify, design, implement, and maintain innovative software systems.

Western's Software Engineering Program

Common First Year

All first-year students complete a common first year. Courses include: Applied Mathematics — Calculus, Applied Mathematics — Linear Algebra, Business for Engineers, Chemistry, Computer Programming Fundamentals, Introductory Engineering Design and Innovation Studio, Physics, Properties of Materials and Statics.
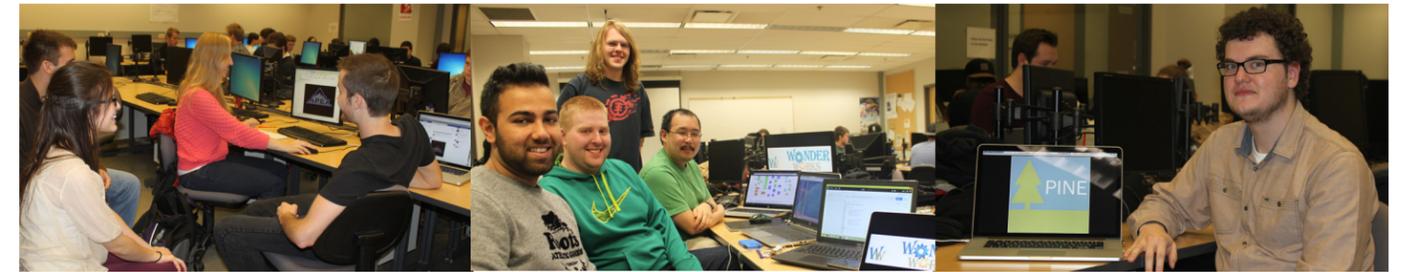
Upon completing Western Engineering's common first year, students pursue the next three years in Software Engineering with an opportunity to complete an Embedded Systems or Health Informatics Option in fourth year.

Software Engineering

Western's Software Engineering program has a core of disciplines that covers all phases of the software life cycle. Our program offers a solid foundation in computer hardware and computer networks, while exploring the essentials of computer science.

Health Informatics Option

Health Informatics is the emerging field of collecting, storing, retrieving and presenting health related information. This option provides training on issues related to handling such information as well as issues on security, privacy and integrity.

Individualize Your Software Engineering Degree

Dual Degrees

A dual degree allows you to gain a competitive edge towards a rewarding career. You will have the engineering skills and knowledge to become a successful problem solver, prepared to address and find solutions to current and future problems around the world in a traditional engineering career or a profession of your choice. We offer the following dual degrees with our Software Engineering program:

Software Engineering and Business

After two years in Engineering, you can apply to the Ivey Business School. If admitted to Ivey, you will take a combination of HBA courses and Software Engineering courses for the next three years. At the end of five years, you will graduate with both BESc and HBA degrees.

Software Engineering and Law

After three years in Engineering, you can apply to Western Law after writing the LSAT examinations. For the next three years, you will take a combination of Law courses and Software Engineering courses. At the end of six years, you will graduate with both BESc and LLB degrees.

Dual Degrees with Other Faculties

We also offer more than 50 other dual degrees involving a major module in faculties such as: Science, Music, Social Science or Arts & Humanities.

Internship and Co-op Programs

Our options Internship and Summer Engineering Co-op Program provides you with opportunities to gain practical experience while earning a salary. The 12 to 16-month internship is available following your third year of study. Summer co-ops provide technical work experience during the summer months (May-August). You can complete a co-op every year or choose to complete just one during your time at Western.

Accelerated Master's Program

This program is offered to 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 provides you with the opportunity to receive a research master's degree within one year of receiving your bachelor's degree.

Career Opportunities

Sample Careers

- Software Design Engineer
- Software Testing Engineer
- Systems Integration Engineer - Software
- Technical Architect - Software
- Telecommunications Software Engineer
- Embedded Software Engineer

Types of Employers

- Computer Systems Design and Related Services
- Communications Equipment Manufacturing
- Finance and Insurance Companies
- Scientific Research and Development Services
- Companies that offer internet based services
- Software Publishers

Meet Laura Smith

Software Engineering with Business

Laura completed a four-month summer co-op at Pinterest in San Francisco as a member of their iOS team - working on iPhone and iPad apps.

"The 'Pinternship' was an incredible opportunity to work at a company at the forefront of social media. I also had the benefit of learning from world-class engineers in the beautiful city of San Francisco."