THOMPSON RIVERS UNIVERSITY
Science

SOFTWARE ENGINEERING

Software Engineers directly impact many sectors of society including manufacturing, transportation, healthcare, government, and the media. These sectors rely on computer tools and applications in their day-to-day operations and have benefited greatly from rapidly changing and innovative information technology solutions to problems.
An overwhelming growth in computing and related IT industries has created a tremendous demand for software engineers – professionals with both the technical knowledge and skills to design, develop, test and maintain problem-solving software.

THE TRU PATH

At Thompson Rivers University, the Bachelor of Engineering (BEng) degree prepares graduates to work in industry jobs related to software application development, software testing, software design, database management, network management and operations, security analysis and protection, and more.

The BEng degree program in Software Engineering, the first software engineering program to be offered outside the major urban centers in the province of British Columbia, offers:

- Strong foundations in principles and practice of software systems development, and related computing technologies.
- Project-based learning practices that apply theoretical concepts to practical problems.
- Co-op work terms to gain relevant, paid work experience in industry.
- One-year design capstone project from real world industry to gain in-depth experiential learning.

THE CO-OP ADVANTAGE

Students in Software Engineering must enroll in the Co-operative Education Program as a part of the degree. Students are required to complete three work terms in total, with two mandatory work terms (total eight months) in the fourth year of study. It is crucial that students in this program learn from their experience working in a real-world environment. This work-focused program aims to serve the needs of the regional skilled labour requirements and aims to establish strong collaborations with regional and national high tech industry. The pattern of possible work and study terms for the work terms is shown in the following table.

CALENDAR YEAR	FALL	WINTER	SUMMER
1	Year I	Year I	
2	Year II	Year II	
3	Year III	Year III	Work term (optional)
4	**Year IV COOP Work Term I**	**Year IV COOP Work Term II**	Work term (optional)
5	Year V	Year V	

The sequence of coursework in the Software Engineering program is outlined below:

Year I (Fall)	Year I (Winter)
Engineering Design 1	Fundamental Physics for Engineers 2
Programming for Engineers 1	Engineering Mechanics 1
Linear Algebra for Engineers	Calculus 2 for Engineering
Introduction to University Writing	Introduction to Professional Writing
Fundamental Physics for Engineers 1	Programming for Engineers 2
Calculus 1 for Engineering	Engineering Design II
Year II (Fall)	**Year II (Winter)**
Circuit Analysis	Introduction to Signal Processing
Electrical Properties of Materials	Engineering Design III
Engineering in Society, Health and Safety	Digital and Semiconductor Electronics
Computer Architecture & Assembly Language	Engineering Management
Probability and Statistics for Engineers	Engineering Economics
Discreet Mathematics	Principles of Chemistry
Year III (Fall)	**Year III (Winter)**
Algorithms & Data Structures	Operating Systems
Digital System Design	Database Management Systems Design
Introduction to Control Systems	Software Engineering Design: Process & Principles
Software Requirements and Specifications	Applied Software Engineering
Communication Systems	Real Time Systems Design
Engineering Professional Ethics	
Year IV (Fall)	**Year IV (Winter)**
COOP Work Term - I	COOP Work Term - II
Year V (Fall)	**Year V (Winter)**
Software Engineering Design Project	Communications Networks
Software Model Engineering & Formal Methods	Software Estimation
Software Testing & Verifications	Software Security Engineering
Software Design Patterns	Software Quality Engineering
Upper Level Technical Elective -1	Upper Level Technical Elective -3
Upper Level Technical Elective -2	Upper Level Technical Elective -4

THE RIGHT PROGRAM FOR A BRIGHT FUTURE

The BEng program in Software Engineering is designed to meet the accreditation criteria of the Engineers Canada Accreditation Board. Thus, graduates will meet all of the educational requirements for registration as a Professional Engineer through APEGBC. Up to 12 months of the Co-op work terms may count towards the work experience required for professional designation. Because the program will provide students with breadth and depth in computing theory, software development, mathematics, engineering science, and regulatory issues, graduates will be able to access a broad variety of careers. Graduating software engineers work in industry to design software related to telecommunications, computer and electronic product manufacturing, mining, healthcare industries, and almost every other field imaginable.

WHY THOMPSON RIVERS UNIVERSITY?

THE PAST: TRU has offered a one-year Engineering Transfer Program for over 30 years with more than 800 students completing their training within British Columbia or elsewhere. In 2015, the program was expanded to enable students, after second year, to transfer to the University of Victoria in Electrical or Computer Engineering.

THE PRESENT: Surveys indicate that Canada's labour market is experiencing a significant shortfall in engineers trained in Electrical, Software and Computer Engineering. At TRU, increasing numbers of applicants to our transfer program illustrates a growing demand by students for engineering training.

THE FUTURE: The program will serve the educational and training needs of the interior of BC and help in strengthening the provincial and national economy. The software engineering program will also increase TRU's capacity to offer a full four-year undergraduate degree in other engineering disciplines.

For More Information:

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