

BASC IN SOFTWARE ENGINEERING

Software engineering is a CO-OP only program that emphasizes innovation and teamwork to develop practical, solution-driven thinking. During their fourth-year project, students in this program can form teams and leverage their work experience to create real applications; some students even start their own companies. They learn how to apply engineering principles—including rapid prototyping, requirements analysis, system modelling, design, implementation, testing and project management—to develop software. Software engineers are key professionals in fields such as high tech, finance, telecommunications, government, health care, transportation and entertainment.

The Extended French Stream (EFS) is newly available to students who want to continue their French immersion studies during their university career.

This program is offered in English and in French.

Program Requirements

Co-operative education is mandatory with this program.

The extended French stream is available with this program.

Requirements for this program have been modified. Please consult the 2018-2019 calendars (<https://catalogue.uottawa.ca/en/archives>) for the previous requirements.

Compulsory First-Year Courses:

ENG 1112	Technical Report Writing	3 Units
GNG 1105	Engineering Mechanics	3 Units
ITI 1100	Digital Systems I	3 Units
ITI 1120	Introduction to Computing I	3 Units
ITI 1121	Introduction to Computing II	3 Units
MAT 1320	Calculus I	3 Units
MAT 1322	Calculus II	3 Units
MAT 1341	Introduction to Linear Algebra	3 Units
MAT 1348	Discrete Mathematics for Computing	3 Units
PHY 1322	Principles of Physics II ³	3 Units
SEG 2901	Work Term I	3 Units

3 course units from:

CHM 1301 Principles of Chemistry

CHM 1311 Principles of Chemistry

3 course units from: 3 Units

PHY 1321 Principles of Physics I¹

PHY 1331 Principles of Physics I¹

Compulsory Second-Year Courses:

CEG 2136	Computer Architecture I	3 Units
CSI 2101	Discrete Structures	3 Units
CSI 2110	Data Structures and Algorithms	3 Units
CSI 2132	Databases I	3 Units
GNG 2101	Introduction to Product Development and Management for Engineers and Computer Scientists	3 Units
MAT 2377	Probability and Statistics for Engineers	3 Units

PHY 2104	Introduction to Circuit Theory and Electronics	3 Units
SEG 2105	Introduction to Software Engineering	3 Units
SEG 2106	Software Construction	3 Units
SEG 2900	Professional Communication and Responsibility	3 Units

SEG 2911	Professional Software Engineering Practice	3 Units
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SEG 3901	Work Term II	3 Units
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Compulsory Third-Year Courses:

CEG 3185	Introduction to Data Communications and Networking	3 Units
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CSI 3105	Design and Analysis of Algorithms I	3 Units
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CSI 3131	Operating Systems	3 Units
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SEG 3101	Software Requirements Analysis	3 Units
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SEG 3102	Software Design and Architecture	3 Units
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SEG 3103	Software Quality Assurance	3 Units
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SEG 3125	Analysis and Design of User Interfaces	3 Units
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SEG 3902	Work Term III	3 Units
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Compulsory Fourth-Year Courses:

SEG 4105	Software Project Management	3 Units
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SEG 4145	Real Time and Embedded Software Design	3 Units
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SEG 4910	Software Engineering Capstone Project Part 1	3 Units
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SEG 4911	Software Engineering Capstone Project Part 2	3 Units
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Optional Fourth-Year Courses

3 optional course units in Software Engineering from: 3 Units

CSI 2372 Advanced Programming Concepts With C++²

CEG 3136 Computer Architecture II

CEG 3155 Digital Systems II

CEG 4399 Design of Secure Computer Systems

SEG 3904 Innovation Research Project

SEG 4110 Advanced Software Design and Reengineering

SEG 4135 Cloud Systems and Networks

SEG 4156 Telecommunications Software Design and Analysis

SEG 4189 Introduction to Electronic Commerce

SEG 4300 Topics in Software Engineering

3 optional course units in Computing from: 3 Units

CSI 2120 Programming Paradigms

or any course in software engineering (SEG), computer science (CSI), computer engineering (CEG), or electrical engineering (ELG) at the 3000 or 4000 level³

3 complementary electives course units at the undergraduate level⁴

9 elective course units⁵ 9 Units

The following courses in the field "Impact of technology and/or engineering on society" are recommended as electives.

ADM 2372 Management Information Systems

ADM 3378 Emerging Topics in Management Information Systems

ENG 3170 Writing for Digital Media II

GEG 2320 Introduction to Geomatics

GNG 4120 Technology Entrepreneurship for Engineers and Computer Scientists

This is a copy of the 2019-2020 catalog.

GNG 4170 Engineering Law

GNG 4171 Intellectual Property and Technology Law for Engineers

HIS 2129 Technology, Society and Environment Since 1800

SEG 4901 Work Term IV

SEG 4902 Work Term V

SEG 4903 Work Term VI

Total: 129 Units

Note(s)

- ¹ Under special circumstances, students may be allowed to substitute an alternative sequence of 4 science courses for PHY 1331, PHY 1322, CHM 1301, PHY 2104.
- ² CSI 2372 is recommended.
- ³ Suitably qualified students, with permission, may also take graduate courses offered in the School of Electrical Engineering and Computer Science.
- ⁴ For a complete list of courses please refer to the list of complementary elective courses (<https://engineering.uottawa.ca/undergraduate-programs/courses/complementary-electives>) on the Faculty of Engineering website.
- ⁵ Courses chosen among all the courses offered at the University, excluding any course in software engineering (SEG), computer science (CSI), computer engineering (CEG).