

The Software Engineering program teaches students to solve problems through the systematic development and evolution of large software systems, while considering cost and time constraints. Students learn how to apply engineering principles to tasks, including requirements analysis, measurement, modelling, design, validation, implementation, testing, documentation and management. Software engineers are key professionals in all fields, including high tech, finance, telecommunications, government, healthcare, transportation and entertainment.

UNDERGRADUATE STUDIES

The Software Engineering program at the University of Ottawa leads to an honours bachelor's degree, which requires the equivalent of four years of university studies and 132 credits (44 courses).

Bachelor's degrees

- BAsC in Software Engineering^c
- BAsC in Software Engineering, Engineering Management and Entrepreneurship Option^c

^c: Co-operative Education Program available.

Language of instruction

Software engineering courses are offered in English and French. Advanced courses are generally offered only in English.

Career opportunities

- Software engineer
- Systems architect
- Computer security analyst
- Quality assurance engineer
- Video game designer
- Systems analyst
- User interface designer
- Telecommunications engineer

What can I do with my studies?

(<http://www.sass.uottawa.ca/careers/studies>) is a tool that provides information on career opportunities in software engineering.

ADMISSION

See the **Admission** section for deadlines and general admission requirements specific to students from each Canadian province and territory.

Co-operative Education (CO-OP)

Students can apply for direct admission to the CO-OP stream when applying for regular admission to the University of Ottawa. Admission to CO-OP is on a competitive basis. Students must have a minimum average of 80% (75% for CEGEP students). They can also apply to the CO-OP stream once they have begun their studies (requirements vary from program to program). See page 2-3 for more information.

SUGGESTED 2011-2012 COURSE SEQUENCE

The following are examples of course sequences. To see the most recent course sequence version or to see the course descriptions, please visit www.programs.uOttawa.ca.

BASc in Software Engineering – 132 credits (4 years)

| | | Total | 1st year | 2nd year | 3rd year | 4th year |
|----------------------|--------|-----------------------------|---|--|--|---|
| Total | | 132 credits (44 courses) | 30 credits (10 courses) | 36 credits (12 courses) | 33 credits (11 courses) | 33 credits (11 courses) |
| Software Engineering | FALL | 132 credits (44 courses) | CHM1311 Principles of Chemistry NGG1105 Engineering Mechanics ITI1120 Introduction to Computing I MAT1320 Calculus I MAT1341 Introduction to Linear Algebra | CEG2136 Computer Architecture I CSI2110 Data Structures and Algorithms ECO1192 Engineering Economics ENG1112 Technical Report Writing SEG2105 Introduction to Software Engineering 3 credits of science electives | CS13105 Design and Analysis of Algorithms I SEG3101 Software Requirements Analysis SEG3102 Software Design and Architecture 3 credits from: HIS2129 Technology, Society and Environment Since 1800 PHI2394 Scientific Thought and Social Values 3 credits from List A 3 credits from List B | SEG4105 Software Project Management SEG4910 Software Engineering Capstone Project - Part 1 3 credits of science electives 6 credits of technical electives ¹ 3 credits from List B |
| | WINTER | | ITI1100 Digital Systems I ITI1121 Introduction to Computing II MAT1322 Calculus II MAT1348 Discrete Mathematics for Computing PHY1124 Fundamentals of Physics for Engineers | ADM1100 Introduction to Business Management CSI2101 Discrete Structures CSI2132 Databases I MAT2377 Probability and Statistics for Engineers SEG2106 Software Construction SEG2911 Professional Software Engineering Practice | CS13131 Operating Systems SEG3103 Software Quality Assurance SEG3125 Analysis and Design of User Interfaces CEG3185 Introduction to Data Communications and Networking 3 credits from general electives | SEG4145 Real Time and Embedded Software Design SEG4911 Software Engineering Capstone Project - Part 2 9 credits of technical electives |

Notes

¹ Courses must be selected from (a) CEG, CSI, ELG, SEG at the 3000 level or above, (b) either ADM3378 or GEG2320 and (c) one course from outside the Faculty of Engineering (Faculty approval required). Three of these courses must be from an area of specialization approved by coordinator.

3 credits = 1 course

Valid for the 2011–2012 academic year.
For more information, see page 1.

List A – Engineering electives

| | |
|---------|--|
| CHG2317 | Introduction to Chemical Process Analysis and Design |
| CVG2141 | Civil Engineering Materials |
| CVG2149 | Civil Engineering Mechanics |
| ELG2138 | Circuit Theory I |
| MCG2108 | Mechanics II |
| MCG2130 | Thermodynamics I |
| MCG2360 | Engineering Materials I |

List B – Computing electives

| | |
|---------|---|
| CEG3136 | Computer Architecture I |
| CEG3155 | Digital Systems II |
| CSI2120 | Programming Paradigms |
| CSI2372 | Advanced Programming Concepts with C++ ¹ |
| CSI3130 | Databases I |
| CSI3140 | WWW Structures, Techniques and Standards |
| CSI4139 | Design of Secure Computer System |
| SEG4110 | Advanced Software Design and Reengineering |
| SEG4156 | Telecommunications Software Design and Analysis |
| SEG4189 | Introduction to Electronic Commerce |

Notes

¹ CSI2372 is recommended for CO-OP students.

BASc in Software Engineering, Engineering Management and Entrepreneurship Option 132 credits (4 years)

| | | Total | 1st year | 2nd year | 3rd year | 4th year |
|--|--------|-------------------------------------|---|--|---|---|
| Total | | 132 credits (44 courses) | 30 credits (10 courses) | 36 credits (12 courses) | 33 credits (11 courses) | 33 credits (11 courses) |
| Software Engineering | FALL | 117 credits (39 courses) | CHM1311 Principles of Chemistry GNG1105 Engineering Mechanics ITI1120 Introduction to Computing I MAT1320 Calculus I MAT1341 Introduction to Linear Algebra | CEG2136 Computer Architecture I CSI2110 Data Structures and Algorithms ECO1192 Engineering Economics ENG1112 Technical Report Writing SEG2105 Introduction to Software Engineering 3 credits from science electives | CSI3105 Design and Analysis of Algorithms I SEG3101 Software Requirements Analysis SEG3102 Software Design and Architecture 3 credits (1 course) from: HIS2129 Technology, Society and Environment Since 1800 PHI2394 Scientific Thought and Social Values 3 credits from List A 3 credits from List B | SEG4105 Software Project Management SEG4910 Software Engineering Capstone Project - Part 1 3 credits from science electives 3 credits from List B 3 credits from 3000-level or more technical electives in CEG, CSI, ELG, SEG |
| | WINTER | | ITI1100 Digital Systems I ITI1121 Introduction to Computing II MAT1322 Calculus II MAT1348 Discrete Mathematics for Computing | CSI2101 Discrete Structures CSI2132 Databases I MAT2377 Probability and Statistics for Engineers PHY1124 Fundamentals of Physics for Engineers SEG2106 Software Construction | CSI3131 Operating Systems SEG3103 Software Quality Assurance SEG3125 Analysis and Design of User Interfaces CEG3185 Introduction to Data Communications and Networking | SEG2911 Professional Software Engineering Practice SEG4145 Real Time and Embedded Software Design SEG4911 Software Engineering Capstone Project - Part 2 3 credits from 3000-level or more technical electives in CEG, CSI, ELG, SEG |
| Engineering Management and Entrepreneurship Option | FALL | 15 credits (5 courses) | | | | ADM3313 Entrepreneurial Mind: New Venture Creation |
| | WINTER | | ADM1100 Introduction to Business Management | ADM2320 Marketing | ADM1340 Financial Accounting | 3 credits in management from List C |

3 credits = 1 course

Valid for the 2011–2012 academic year.
For more information, see page 1.

List A – Engineering electives

| | |
|---------|--|
| CHG2317 | Introduction to Chemical Process Analysis and Design |
| CVG2141 | Civil Engineering Materials |
| CVG2149 | Civil Engineering Mechanics |
| ELG2138 | Circuit Theory I |
| MCG2108 | Mechanics II |
| MCG2130 | Thermodynamics I |
| MCG2360 | Engineering Materials I |

List B – Computing electives

| | |
|---------|---|
| CEG3136 | Computer Architecture I |
| CEG3155 | Digital Systems II |
| CSI2120 | Programming Paradigms |
| CSI2372 | Advanced Programming Concepts with C++ ¹ |
| CSI3130 | Databases I |
| CSI3140 | WWW Structures, Techniques and Standards |
| CSI4139 | Design of Secure Computer System |
| SEG4110 | Advanced Software Design and Reengineering |
| SEG4156 | Telecommunications Software Design and Analysis |
| SEG4189 | Introduction to Electronic Commerce |

List C - Engineering Management and Entrepreneurship Option

| | |
|---------|--|
| ADM1101 | Social Context of Business |
| ADM2336 | Organizational Behaviour |
| ADM3318 | International Business |
| ADM3319 | Cross-Cultural Management |
| ADM3326 | Advertising and Sales Promotion Management |
| GNG4170 | Engineering Law |
| GNG4171 | Intellectual Property and Technology Law for Engineers |
| PHI2397 | Business Ethics |

Notes

¹ CSI2372 is recommended for CO-OP students.

