## 2014 / 2015 CURRICULUM - SOFTWARE ENGINEERING
### EIGHT SEMESTER PROGRAM

**Total credits:** 137

### First (Fall) Semester | 15 credits | Second (Winter) Semester | 18 credits
---|---|---|---
**CHEM 110** General Chemistry 1 (4 cr) | **CHEM 120** General Chemistry 2 (4 cr)  
**MATH 140** Calculus 1 (3 cr) | **MATH 141** Calculus 2 (4 cr, P - MATH 140)  
**PHYS 131** Mechanics & Waves (4 cr, C - MATH 140) | **PHYS 142** Electromagnetism & Optics (4 cr, P - PHYS 131; C - MATH 141)  
**MATH 133** Linear Algebra and Geometry (3 cr) | **XXX** Humanities & Social Sciences 1* (3 cr)  
**FACC 100** Intro. to the Engineering Profession (1 cr) | **XXX** Impact of Technology on Society ** (3 cr)  

### Third (Fall) Semester | 18 credits | Fourth (Winter) Semester | 18 credits
---|---|---|---
**COMP 202** Foundations of Programming (3 cr) | **ECSE 210** Electric Circuits 2 (3 cr, P - ECSE 200)  
**ECSE 200** Electric Circuits 1 (3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263) | **ECSE 221** Intro. to Computer Engineering (3 cr, P - COMP 202)  
**CCOM 206** Communication in Engineering (3 cr) | **ECSE 321** Intro. to Software Engineering (3 cr, P - COMP 202 or COMP 208)  
**MATH 262** Intermediate Calculus (3 cr, P - MATH 141, MATH 131 or equivalent) | **MATH 270** Applied Linear Algebra (3 cr, P - MATH 263)  
**MATH 263** Ord. Differential Eqns. For Engineers (3 cr, C - MATH 262) | **MATH 264** Advanced Calculus for Engineers (3 cr, P - MATH 262 or equiv; C - MATH 263)  
**XXX** Humanities & Social Sciences 2* (3 cr) | **COMP 250** Introduction to Computer Science (3 cr)  

### Fifth (Fall) Semester | 17 credits | Sixth (Winter) Semester | 17 credits
---|---|---|---
**COMP 251** Algorithms and Data Structures (3 cr, P - COMP 250) | **COMP 206** Introduction to Software Systems (3 cr, P - COMP 202 or COMP 250)  
**COMP 302** Prog. Languages & Paradigms (3 cr, P - COMP 250) | **ECSE 305** Probability & Random Signals 1 (3 cr, P - ECSE 303 or ECSE 368)  
**ECSE 211** Design Principles and Methods (3 cr, C - ECSE 291, P - ECSE 200 & COMP 202) | **ECSE 323** Digital Systems Design (3 cr, P - COMP 202 or COMP 208)  
**ECSE 291** Electrical Measurements Lab (2 cr, C - ECSE 210) | **ECSE 427** Operating Systems (3 cr, P - MATH 262 or equiv; C - MATH 263)  
**ECSE 306** Fundamentals of Signals & Systems (3 cr, P - ECSE 210 & MATH 270) | **MATH 363** Discrete Mathematics (3 cr, P - MATH 263 & MATH 264)  
**ECSE 322** Computer Engineering (3 cr, P - ECSE 221 & ECSE 200 or MECH 383) | **ECSE 456** ECSE Design Project 1 (3 cr, P - ECSE 427)  

### Seventh (Fall) Semester | 16 credits | Eighth (Winter) Semester | 18 credits
---|---|---|---
**COMP 360** Algorithms Design (3 cr, P - COMP 251, MATH 363) | **COMP 421** Database Systems (3 cr, P - COMP 206, COMP 251 & COMP 363)  
**ECSE 414** Intro. to Telecom Networks (3 cr, P - COMP 304 or ECSE 306 & ECSE 322) | **ECSE 428** Software Engineering Practice (3 cr, P - ECSE 321 or COMP 335)  
**ECSE 420** Parallel Computing (3 cr, P - ECSE 427) | **ECSE 457** ECSE Design Project 2 (3 cr, P-ECSE 456)  
**ECSE 429** Software Validation (3 cr, P - ECSE 321 or COMP 303) | **XXX** xxx t1 Technical Complementary Courses (3 cr)  
**ECSE 456** ECSE Design Project 1 (3 cr, P - CCOM 206, COMP 302, ECSE 211, ECSE 306, ECSE 321, ECSE 322 ) | **XXX** xxx t2 Technical Complementary Courses (3 cr)  
**FACC 400** Engineering Professional Practice (1 cr, P - FACC100, 60 program credits) | **FACC 300** Engineering Economy (3 cr)  

Courses shown in boldface above must be passed with a grade “C” or better. A “D” is only acceptable in the courses not in boldface. Also, a grade of “C” is required in all prerequisites in order to proceed with the follow-on courses.

Technical Complementary courses are selected from the list given on the next page.

* For instructions on selecting valid “Humanities and Social Sciences” courses, see [www.mcgill.ca/ece](http://www.mcgill.ca/ece), then: Programs and Courses > Undergraduate > Complementary Studies.

** For instructions on selecting valid “Impact of Technology on Society” courses, see [www.mcgill.ca/ece](http://www.mcgill.ca/ece), then: Programs and Courses > Undergraduate > Complementary Studies.

This sample curriculum is for students who wish to complete their degree requirements in 8 semesters. Students may, at any time, deviate from this structure. However, it is the student's responsibility to devise a study plan that has no course conflicts or prerequisite/corequisite violations. Academic advisors are available for help with course selection.
TECHNICAL COMPLEMENTARY COURSES - SOFTWARE ENGINEERING PROGRAM

Technical Complementaries (2 courses) 6-7 credits

Students following the Software Engineering program should take 6-7 credits. It is possible that not all the courses listed will be offered in any given year. Please refer to the up-to-date course assignments before selecting any course. Permission will not be granted to take Technical Complementary courses that are not on this list. ECSE 500 level technical complementaries are restricted to students with a minimum CGPA of 3.0 and B+ or better in the prerequisites.

COMP 330 Theory of Computation (3 cr, P - COMP 251)
COMP 350 Numerical Computing (3 cr, P - MATH 222, MATH 223 & one of COMP 202, COMP 208 or COMP 250 or equiv)
COMP 409 Concurrent Programming (3 cr, P - COMP 251, COMP 302 & COMP 310 or ECSE 427)
COMP 424 Artificial Intelligence (3 cr, P - COMP 206 or ECSE 321, COMP 251)
COMP 520 Compiler Design (4 cr, P - COMP 273 & COMP 302)
COMP 557 Fundamentals of Computer Graphics (3 cr, P - MATH 223, COMP 206 & COMP 251) *
COMP 566 Discrete Optimization 1 (3 cr, P - COMP 360 & MATH 223)
COMP 575 Fundamentals of Distributed Algorithms (3 cr, P - COMP 310)
ECSE 404 Control Systems (3 cr, C - ECSE 304 or ECSE 306)
ECSE 411 Communications Systems 1 (3 cr, P - ECSE 305 & ECSE 304 or ECSE 306)
ECSE 412 Discrete-Time Signal Processing (3 cr, P - ECSE 304 or ECSE 306)
ECSE 413 Communications Systems 2 (3 cr, P - ECSE 411)
ECSE 415 Introduction to Computer Visions (3 cr, P - ECSE 304 or ECSE 306)
ECSE 422 Fault Tolerant Computing (3 cr, P - ECSE 322)
ECSE 424 Human-Computer Interaction (3 cr, P - ECSE 322)
ECSE 425 Computer Org. & Architecture (3 cr, P - ECSE 322 & ECSE 323)
ECSE 426 Microprocessor Systems (3 cr, P - ECSE 323 & CCOM 206)
ECSE 504 Sampled Data Control (3 cr, P - ECSE 304 or ECSE 306; C - ECSE 404 or ECSE 501)
ECSE 507 Optimization & Optimal Control (3 cr, P - MATH 264 & MATH 270)
ECSE 523 Speech Communications (3 cr, P - ECSE 412 or ECSE 512)
ECSE 529 Computer and Biological Vision (3 cr, P - ECSE 304 or ECSE 306)
ECSE 530 Logic Synthesis (3 cr, P - ECSE 323)
ECSE 532 Computer Graphics (3 cr, P - ECSE 322) *
ECSE 539 Software Language Engineering (3 cr, P - COMP 303 or COMP 321 or permission of instructor)
ECSE 570 Automatic Speech Recognition (3 cr, P - ECSE 305 and ECSE 322)

*Students may choose either COMP 557 or ECSE 532, not both.