

# 2012 / 2013 CURRICULUM - SOFTWARE ENGINEERING

EIGHT SEMESTER PROGRAM Total credits: 137

First ( Fall ) Semester		15 credits	Second ( Winter ) Semester		18 credits
<b>CHEM 110</b>	<b>General Chemistry 1</b>	(4 cr)	<b>CHEM 120</b>	<b>General Chemistry 2</b>	(4 cr)
<b>MATH 140</b>	<b>Calculus 1</b>	(3 cr, P - High school Calculus)	<b>MATH 141</b>	<b>Calculus 2</b>	(4 cr, P - MATH 139 or MATH 140 or MATH 150)
<b>PHYS 131</b>	<b>Mechanics &amp; Waves</b>	(4 cr)	<b>PHYS 142</b>	<b>Electromagnetism &amp; Optics</b>	(4 cr, P - PHYS 131)
<b>MATH 133</b>	<b>Linear Algebra and Geometry</b>	(3 cr)	XXXX xxx	Humanities & Social Sciences 1*	(3 cr)
<b>FACC 100</b>	<b>Intro. to the Engineering Profession</b>	(1 cr)	XXXX xxx	Impact of Technology on Society **	(3 cr)
Third ( Fall ) Semester		18 credits	Fourth ( Winter ) Semester		18 credits
<b>COMP 202</b>	<b>Foundations of Programming</b>	(3 cr)	<b>ECSE 210</b>	<b>Electric Circuits 2</b>	(3 cr, P - ECSE 200)
<b>COMP 250</b>	<b>Introduction to Computer Science</b>	(3 cr)	<b>ECSE 221</b>	<b>Intro. to Computer Engineering</b>	(3 cr, P - COMP 202)
<b>ECSE 200</b>	<b>Electric Circuits 1</b>	(3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263)	<b>MATH 270</b>	<b>Applied Linear Algebra</b>	(3 cr, P - MATH 263)
<b>CCOM 206</b>	<b>Communication in Engineering</b>	(3 cr)	<b>MATH 264</b>	<b>Advanced Calculus for Engineers</b>	(3 cr, P - MATH 262 or MATH 151 or MATH 152 or equiv; C - MATH 263)
<b>MATH 262</b>	<b>Intermediate Calculus</b>	(3 cr, P - MATH 141, MATH 133 or equivalent)	XXXX xxx	Humanities & Social Sciences 2*	(3 cr)
<b>MATH 263</b>	<b>Ord. Differential Eqns. For Engineers</b>	(3 cr, C - MATH 262)	<b>COMP 302</b>	<b>Prog. Languages &amp; Paradigms</b>	(3 cr, P - COMP 250)
Fifth ( Fall ) Semester		17 credits	Sixth ( Winter ) Semester		17 credits
<b>COMP 251</b>	<b>Algorithms and Data Structures</b>	(3 cr, P - COMP 203 or COMP 250)	<b>COMP 206</b>	<b>Introduction to Software Systems</b>	(3 cr, P - COMP 202 or COMP 250)
<b>ECSE 211</b>	<b>Design Principles and Methods</b>	(3 cr, C - ECSE 291, P - ECSE 200 & COMP 202)	<b>ECSE 305</b>	<b>Probability &amp; Random Signals 1</b>	(3 cr, P - ECSE 303 or ECSE 306)
<b>ECSE 291</b>	<b>Electrical Measurements Lab</b>	(2 cr, C - ECSE 210)	<b>ECSE 323</b>	<b>Digital Systems Design</b>	(5 cr, P - CCOM 206, ECSE 211, ECSE 221 & ECSE 291)
<b>ECSE 306</b>	<b>Fundamentals of Signals &amp; Systems</b>	(3 cr, P - ECSE 210 & MATH 270 or MATH 271)	<b>ECSE 427</b>	<b>Operating Systems</b>	(3 cr, P - ECSE 322 or COMP 273)
<b>ECSE 321</b>	<b>Intro. to Software Engineering</b>	(3 cr, P - COMP 202 or COMP 208)	<b>MATH 363</b>	<b>Discrete Mathematics</b>	(3 cr, P - MATH 263 & MATH 264)
<b>ECSE 322</b>	<b>Computer Engineering</b>	(3 cr, P - ECSE 221 & ECSE 200 or MECH 383)			
Seventh ( Fall ) Semester		16 credits	Eighth ( Winter ) Semester		18 credits
<b>COMP 360</b>	<b>Algorithms Design</b>	(3 cr, P - COMP 251, MATH 240 or MATH 363)	<b>COMP 421</b>	<b>Database Systems</b>	(3 cr, P - COMP 206, COMP 251 & COMP 302)
<b>ECSE 414</b>	<b>Intro. to Telecom Networks</b>	(3 cr, P - ECSE 304 or ECSE 306 & ECSE 322)	<b>ECSE 428</b>	<b>Software Engineering Practice</b>	(3 cr, P - ECSE 321 or COMP 335)
<b>ECSE 420</b>	<b>Parallel Computing</b>	(3 cr, P - ECSE 427)	<b>ECSE 457</b>	<b>ECSE Design Project 2</b>	(3 cr, P-ECSE 456)
<b>ECSE 429</b>	<b>Software Validation</b>	(3 cr, P - ECSE 321 or COMP 303)	XXXX xxx t1	<b>Technical Complementary 1</b>	(3 cr)
<b>ECSE 456</b>	<b>ECSE Design Project 1</b>	(3 cr, P - CCOM 206, COMP 302, ECSE 211, ECSE 306, ECSE 321, ECSE 322 )	XXXX xxx t2	<b>Technical Complementary 2</b>	(3 cr)
<b>FACC 400</b>	<b>Engineering Professional Practice</b>	(1 cr, P - FACC100)	<b>FACC 300</b>	<b>Engineering Economy</b>	(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: Undergraduate Studies > Program Information > Complementary Studies).

\*\* For instructions on selecting valid "Impact of Technology on Society" courses, see [www.mcgill.ca/ece](http://www.mcgill.ca/ece), then: Undergraduate Studies > Program Information > 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 421	Embedded Systems	(3 cr, P - ECSE 322 & ECSE 323)
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)
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 570	Automatic Speech Recognition	(3 cr, P - ECSE 305 and ECSE 322)

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