

# Software Engineering Curriculum - Fall 2016

Non-CEGEP Entry

<b>1st Term (Fall)</b>		14 credits	Prerequisites/Co-requisites
FACC 100	Introduction to the Engineering Profession	1	-
MATH 133	Linear Algebra and Geometry	3	P - A course in functions
MATH 140	Calculus 1	3	P - High school calculus
PHYS 131	Mechanics and Waves	4	C - Calculus course [MATH 140]
CS	Complementary Studies Group B (HSSML) - 1	3	-
<b>2nd Term (Winter)</b>		18 credits	Prerequisites/Co-requisites
CHEM 120	General Chemistry 2	4	P - College level mathematics and physics or permission of instructor
ECSE 202	Introduction to Software Development	3	-
MATH 141	Calculus 2	4	P - MATH 140
PHYS 142	Electromagnetism and Optics	4	P - PHYS 131 / C - MATH 141
CS	Complementary Studies Group A (Impact)	3	-
<b>3rd Term (Fall)</b>		18 credits	Prerequisites/Co-requisites
CCOM 206	Communication in Engineering	3	-
ECSE 200	Electric Circuits 1	3	P - PHYS 142 / C - MATH 263
ECSE 205	Probability and Statistics for Engineers	3	-
MATH 262	Intermediate Calculus	3	P - MATH 133, MATH 141
MATH 263	Ordinary Differential Equations for Engineers	3	C - MATH 262
CS	Complementary Studies Group B (HSSML) - 2	3	-
<b>4th Term (Winter)</b>		18 credits	Prerequisites/Co-requisites
COMP 206	Introduction to Software Systems	3	P - ECSE 202 or COMP 202 or COMP 250*
COMP 250	Introduction to Computer Science	3	P - Familiarity with a high level programming language and CEGEP level Math [MATH 133, MATH 140, MATH 141]
ECSE 211	Design Principles and Methods	3	P - ECSE 200, ECSE 202 / COMP 202
ECSE 222	Digital Logic	3	P - ECSE 202 / COMP 202
ECSE 223	Model-Based Programming	3	P - ECSE 202 / COMP 202
MATH 363	Discrete Mathematics	3	P - MATH 263*
<b>5th Term (Fall)</b>		17 credits	Prerequisites/Co-requisites
COMP 251	Algorithms and Data Structures	3	P - COMP 250 or COMP 203
ECSE 321	Introduction to Software Engineering	3	P - ECSE 202 or COMP 202 or COMP 208
ECSE 324	Computer Organization	4	P - ECSE 200, ECSE 222
ECSE 326	Software Requirements Engineering	3	P - ECSE 223
ECSE 429	Software Validation	3	P - ECSE 321 or COMP 303
FACC 400	Engineering Professional Practice	1	P - FACC 100, 60 program credits
<b>6th Term (Winter)</b>		16 credits	Prerequisites/Co-requisites
COMP 302	Programming Languages and Paradigms	3	P - COMP 250
COMP 529	Software Architecture	4	P - COMP 303
ECSE 310	Thermodynamics of Computing	3	P - ECSE 200, ECSE 205, ECSE 222
ECSE 316	Signals and Networks	3	P - COMP 251, ECSE 200, MATH 263
ECSE 427	Operating Systems	3	P - ECSE 324 or COMP 273*
<b>7th Term (Fall)</b>		18 credits	Prerequisites/Co-requisites
COMP 360	Algorithm Design	3	P - COMP 251, MATH 363
ECSE 420	Parallel Computing	3	P - ECSE 427
ECSE 456	ECSE Design Project 1	3	P - CCOM 206, ECSE 211, ECSE 326*
FACC 300	Engineering Economy	3	-
ECSE xxx	Technical Complementary	3	-
ECSE xxx	Technical Complementary	3	-
<b>8th Term (Winter)</b>		18 credits	Prerequisites/Co-requisites
COMP 421	Database Systems	3	P - COMP 206, COMP 251, COMP 302
ECSE 428	Software Engineering Practice	3	P - ECSE 321 or COMP 335
ECSE 457	ECSE Design Project 2	3	P - ECSE 456
ECSE xxx	Technical Complementary	3	-
ECSE xxx	Technical Complementary	3	-
Science	Natural Science Complementary	3	-

\*Pending University approval.

Technical and Natural Science Complementary courses are selected from an approved list given on the next page.

The Complementary Studies (CS) courses are Impact of Technology courses (Group A) and Humanities & Social Sciences, Management Studies and Law courses (Group B). Students must take one course (3 credits) from Group A and two courses (6 credits) from Group B. The curriculum above includes suggested terms during which these courses can be taken. These must be chosen from an approved list of courses/departments, found in the program list under "Complementary Studies" in the Faculty of Engineering Undergraduate section of the Programs, Courses and University Regulations publication ([www.mcgill.ca/study](http://www.mcgill.ca/study)) (see your program listing in the "Browse Academic Units & Programs" section).

Students are responsible for satisfying pre-/co-requisites and verifying with their department that they are meeting the requirements of their program.

# Technical Complementary Courses - Software Engineering

## Technical Complementaries

Note: 500-level ECSE courses are restricted to students with a minimum CGPA of 3.0 and B+ or better in prerequisite courses.

12-16 credits (4 courses) from the following:

COMP 330	Theory of Computation	3	P - COMP 251, MATH 240
COMP 350	Numerical Computing	3	P - MATH 222, MATH 223, COMP 202 / COMP 208 / COMP 250, or equivalents
COMP 409	Concurrent Programming	3	P - COMP 251, COMP 302, COMP 310 / ECSE 427
COMP 417	Introduction Robotics and Intelligent Systems	3	P - COMP 251, MATH 223, ECSE 321 / COMP 206
COMP 424	Artificial Intelligence	3	P - COMP 206 / ECSE 321, MATH 323 or equivalent, and COMP 251
COMP 512	Distributed Systems	4	P- COMP 310, COMP 251 or equivalent
COMP 520	Compiler Design	4	P - COMP 273, COMP 302
COMP 521	Modern Computer Games	4	P - COMP 251, MATH 223, COMP 303 / COMP 361
COMP 525	Formal Verification	3	P - COMP 251, COMP 330
COMP 533	Model-Driven Software Development	3	P - ECSE 321 or COMP 303 or COMP 361
COMP 557	Fundamentals of Computer Graphics	3	P - MATH 223, COMP 206, COMP 251
COMP 566	Discrete Optimization 1	3	P - COMP 360, MATH 223
COMP 575	Fundamentals of Distributed Algorithms	3	P - COMP 310
ECSE 325	Digital Systems	3	P - ECSE 324
ECSE 415	Introduction to Computer Vision	3	P - ECSE 304 or ECSE 306
ECSE 416	Telecommunication Networks	4	P - COMP 250, ECSE 205, ECSE 308 / ECSE 316
ECSE 421	Embedded Systems	3	P - ECSE 322, ECSE 323
ECSE 422	Fault Tolerant Computing	3	P - ECSE 322
ECSE 424	Human-Computer Interaction	3	P - ECSE 322 or (COMP 251 and COMP 273)
ECSE 425	Computer Organization and Architecture	3	P - ECSE 322, ECSE 323
ECSE 444	Microprocessors	4	P- ECSE 324
ECSE 539	Software Language Engineering	3	P - COMP 303 or ECSE 321 or permission of instructor