

2012 / 2013 CURRICULUM - COMPUTER ENGINEERING

EIGHT SEMESTER PROGRAM Total credits: 139

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, P - High school Calculus)	MATH 141	Calculus 2	(4 cr, P - MATH 139 or MATH 140 or MATH 150)
PHYS 131	Mechanics & Waves	(4 cr)	PHYS 142	Electromagnetism & Optics	(4 cr, P - PHYS 131)
MATH 133	Linear Algebra and Geometry	(3 cr)	XXXX xxx	Humanities & Social Sciences 1*	(3 cr)
FACC 100	Intro. to the Engineering Profession	(1 cr)	XXXX xxx	Impact of Technology on Society**	(3 cr)
Third (Fall) Semester		18 credits	Fourth (Winter) Semester		18 credits
CIVE 281	Analytical Mechanics	(3 cr, C - MATH 262 & MATH 263)	ECSE 210	Electric Circuits 2	(3 cr, P - ECSE 200)
COMP 202	Foundations of Programming	(3 cr)	ECSE 221	Intro. to Computer Engineering	(3 cr, P - COMP 202)
ECSE 200	Electric Circuits 1	(3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263)	ECSE 321	Intro. to Software Engineering	(3 cr, P - COMP 202 or COMP 208)
CCOM 206	Communication in Engineering	(3 cr)	MATH 264	Advanced Calculus for Engineers	(3 cr, P - MATH 262 or MATH 151 or MATH 152 or equiv; C - MATH 263)
MATH 262	Intermediate Calculus	(3 cr, P - MATH 141, MATH 133 or equivalent)	MATH 270	Applied Linear Algebra	(3 cr, P - MATH 263)
MATH 263	Ord. Differential Eqns. For Engineers	(3 cr, C - MATH 262)	COMP 250	Introduction to Computer Science	(3 cr)
Fifth (Fall) Semester		17 credits	Sixth (Winter) Semester		17 credits
ECSE 211	Design Principles and Methods	(3 cr, C - ECSE 291, P - ECSE 200 & COMP 202)	ECSE 305	Probability & Random Signals 1	(3 cr, P - ECSE 303 or ECSE 306)
ECSE 291	Electrical Measurements Lab	(2 cr, C - ECSE 210)	ECSE 323	Digital Systems Design	(5 cr, P - CCOM 206, ECSE 211, ECSE 221 & ECSE 291)
ECSE 306	Fundamentals of Signals & Systems	(3 cr, P - ECSE 210 & MATH 270 or MATH 271)	ECSE 425	Computer Org. & Architecture	(3 cr, P - ECSE 322 & ECSE 323)
ECSE 322	Computer Engineering	(3 cr, P - ECSE 221 & ECSE 200 or MECH 383)	ECSE 427	Operating Systems	(3 cr, P - ECSE 322 or COMP 273)
ECSE 330	Introduction to Electronics	(3 cr, P - ECSE 210)	MATH 363	Discrete Mathematics	(3 cr, P - MATH 263 & MATH 264)
ECSE 353	Electromagnetic Fields & Waves	(3 cr, P - MATH 264 & ECSE 210)			
Seventh (Fall) Semester		18 credits	Eighth (Winter) Semester		18 credits
COMP 251	Data Structures & Algorithms	(3 cr, P - COMP 203 or COMP 250)	ECSE 457	ECSE Design Project 2	(3 cr, P-ECSE 456)
ECSE 334	Introduction to Microelectronics	(3 cr, P - ECSE 291, ECSE 330 & ECSE 303 or ECSE 306)	FACC 300	Engineering Economy	(3 cr)
ECSE 414	Intro. to Telecom Networks	(3 cr, P - ECSE 304 or ECSE 306 & ECSE 322)	FACC 400	Engineering Professional Practice	(1 cr, P - FACC100)
ECSE 426	Microprocessor Systems	(3 cr, P - ECSE 323 & CCOM 206)	ECSE 4xx	Lab Complementary	(2 cr or 3 cr)
ECSE 456	ECSE Design Project 1	(3 cr, P - ECSE 211, ECSE 322, ECSE 323 & ECSE 330)	XXXX xxx t2	Technical Complementary 2	(3 cr)
XXXX xxx t1	Technical Complementary 1	(3 cr)	XXXX xxx t3	Technical Complementary 3	(3 cr)
			XXXX xxx	Humanities & Social Sciences 2*	(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.

The Lab Complementary course is normally taken in conjunction with a technical complementary.

* For instructions on selecting valid "Humanities and Social Sciences" courses, see 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, 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 AND COMPLEMENTARY COURSES - COMPUTER ENGINEERING PROGRAM**Technical Complementaries (3 courses) 9 credits**

Students following the Computer Engineering program must take 3 courses (9 credits) from the following list. 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.

Course	Course Title	Pre-Requisites and Co-Requisites
COMP 424	Artificial Intelligence	(3 cr, P - COMP 206 or ECSE 321, COMP 251)
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 420	Parallel Computing	(3 cr, P - ECSE 427)
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 428	Software Engineering Practice	(3 cr, P - ECSE 321 or COMP 335)
ECSE 429	Software Validation	(3 cr, P - ECSE 321 or COMP 303)
ECSE 431	Introduction to VLSI CAD.	(3 cr, P - ECSE 323 & ECSE 330)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 322, ECSE 323 & ECSE 304 or ECSE 306)
ECSE 443	Numerical Methods in Elect. Eng.	(3 cr, P - ECSE 221, ECSE 330 & ECSE 351 or ECSE 353)
ECSE 450	Electromagnetic Compatability	(3 cr, P - ECSE 221, ECSE 334 & ECSE 352 or ECSE 353)
ECSE 530	Logic Synthesis	(3 cr, P - ECSE 323)
ECSE 532	Computer Graphics	(3 cr, P - ECSE 322)
ECSE 537	Advanced Digital Intergrated Circuits	(3 cr, P - ECSE 323 & ECSE 334)
ECSE 548	Introduction to VLSI Systems	(3 cr, P - ECSE 323 & ECSE 334)

Laboratory Complementary (one course) 2 credits

Students following the regular Computer Engineering program must take one course (2 credits) from the following list. 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 Laboratory Complementary courses that are not on this list.

Course	Course Title	Pre-Requisite and Co-Requisite Structure
ECSE 434	Microelectronics Laboratory	(2 cr, P - CCOM 206, ECSE 334)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 322, ECSE 323 & ECSE 304 or ECSE 306)
ECSE 487	Computer Architecture Laboratory	(2 cr, P - CCOM 206; C - ECSE 425)
ECSE 489	Telecommunication Network Laboratory	(2 cr, P - CCOM 206; C - ECSE 414 or ECSE 528)
ECSE 490	Digital Signal Processing Lab	(2 cr, P - ECSE 291 & CCOM 206; C - ECSE 412 or ECSE 512)
ECSE 491	Communications Systems Lab	(2 cr, P - CCOM 206 & ECSE 291; C - ECSE 411 or ECSE 511)
ECSE 493	Control & Robotics Lab	(2 cr, P - CCOM 206 & ECSE 291; C - ECSE 404 or ECSE 501)