2014 / 2015 CURRICULUM - COMPUTER ENGINEERING

EIGHT SEMESTER PROGRAM **Total credits:** **139**

First (Fall) Semester		15 credits
CHEM 110	**General Chemistry 1**	(4 cr)
MATH 140	**Calculus 1**	(3 cr)
PHYS 131	**Mechanics & Waves**	(4 cr) C - MATH 140
MATH 133	**Linear Algebra and Geometry**	(3 cr)
FACC 100	**Intro. to the Engineering Profession**	(1 cr)

Second (Winter) Semester		18 credits
CHEM 120	**General Chemistry 2**	(4 cr)
MATH 141	**Calculus 2**	(4 cr, P - MATH 140)
PHYS 142	**Electromagnetism & Optics**	(4 cr, P - PHYS 131; C - MATH 141)
XXXX xxx	Humanities & Social Sciences 1*	(3 cr)
XXXX xxx	Impact of Technology on Society **	(3 cr)

Third (Fall) Semester		18 credits
CIVE 281	**Analytical Mechanics**	(3 cr, C - MATH 262 & MATH 263)
COMP 202	**Foundations of Programming**	(3 cr)
ECSE 200	**Electric Circuits 1**	(3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263)
CCOM 206	**Communication in Engineering**	(3 cr)
MATH 262	**Intermediate Calculus**	(3 cr, P - MATH 141, MATH 133 or equivalent)
MATH 263	**Ord. Differential Eqns. For Engineers**	(3 cr, C - MATH 262)

Fourth (Winter) Semester		18 credits
ECSE 210	**Electric Circuits 2**	(3 cr, P - ECSE 200)
ECSE 221	**Intro. to Computer Engineering**	(3 cr, P - COMP 202)
ECSE 321	**Intro. to Software Engineering**	(3 cr, P - COMP 202 or COMP 208)
MATH 264	**Advanced Calculus for Engineers**	(3 cr, P - MATH 262 or equiv; C - MATH 263)
MATH 270	**Applied Linear Algebra**	(3 cr, P - MATH 263)
COMP 250	**Introduction to Computer Science**	(3 cr)

Fifth (Fall) Semester		17 credits
ECSE 211	**Design Principles and Methods**	(3 cr, C - ECSE 291, P - ECSE 200 & COMP 202)
ECSE 291	**Electrical Measurements Lab**	(2 cr, C - ECSE 210)
ECSE 306	**Fundamentals of Signals & Systems**	(3 cr, P - ECSE 210 & MATH 270)
ECSE 322	**Computer Engineering**	(3 cr, P - ECSE 221 & ECSE 200 or MECH 383)
ECSE 330	**Introduction to Electronics**	(3 cr, P - ECSE 210)
ECSE 353	**Electromagnetic Fields & Waves**	(3 cr, P - MATH 264 & ECSE 210)

Sixth (Winter) Semester		17 credits
ECSE 305	**Probability & Random Signals 1**	(3 cr, P - ECSE 303 or ECSE 306)
ECSE 323	**Digital Systems Design**	(5 cr, P - CCOM 206, ECSE 211, ECSE 221 & ECSE 291)
ECSE 427	**Operating Systems**	(3 cr, P - ECSE 322 or COMP 273)
MATH 363	**Discrete Mathematics**	(3 cr, P - MATH 263 & MATH 264)
XXXX xxx	Humanities & Social Sciences 2*	(3 cr)

Seventh (Fall) Semester		18 credits
COMP 251	**Data Structures & Algorithms**	(3 cr, P - COMP 250)
ECSE 334	**Introduction to Microelectronics**	(3 cr, P - ECSE 291, ECSE 330 & ECSE 303 or ECSE 306)
ECSE 414	**Intro. to Telecom Networks**	(3 cr, P - ECSE 304 or ECSE 306 & ECSE 322)
ECSE 426	**Microprocessor Systems**	(3 cr, P - ECSE 323 & CCOM 206)
ECSE 456	**ECSE Design Project 1**	(3 cr, P - ECSE 211, ECSE 322, ECSE 323 & ECSE 330)
XXXX xxx t1	**Technical Complementary 1**	(3 cr)

Eighth (Winter) Semester		18 credits
ECSE 425	**Computer Org. & Architecture**	(3 cr, P - ECSE 322 & ECSE 323)
ECSE 457	**ECSE Design Project 2**	(3 cr, P-ECSE 456)
FACC 300	**Engineering Economy**	(3 cr)
FACC 400	**Engineering Professional Practice**	(1 cr, P - FACC100, 60 program credits)
ECSE 4xx	**Lab Complementary**	(2 cr or 3 cr)
XXXX xxx t2	**Technical Complementary 2**	(3 cr)
XXXX xxx t3	**Technical Complementary 3**	(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: Programs and Courses > Undergraduate > Complementary Studies.

** For instructions on selecting valid "Impact of Technology on Society" courses, see 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.

Revised April 2014

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 415	Introduction to Computer Visions	(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	Intro to Numerical Methods in EE	(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)

Revised April 2014