

2013 / 2014 CURRICULUM - ELECTRICAL ENGINEERING

EIGHT SEMESTER PROGRAM Total credits: 138

First (Fall) Semester			Second (Winter) Semester		
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			Fourth (Winter) Semester		
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)	MATH 264	Advanced Calculus for Engineers	(3 cr, P - MATH 262 or MATH 151 or MATH 152 or equiv; C - MATH 263)
CCOM 206	Communication in Engineering	(3 cr)	MATH 270	Applied Linear Algebra	(3 cr, P - MATH 263)
MATH 262	Intermediate Calculus	(3 cr, P - MATH 141, MATH 133 or equivalent)	PHYS 271	Introduction to Quantum Physics	(3 cr, P - CIVE 281)
MATH 263	Ord. Differential Eqns. For Engineers	(3 cr, C - MATH 262)	FACC 300	Engineering Economy	(3 cr)
Fifth (Fall) Semester			Sixth (Winter) Semester		
ECSE 211	Design Principles and Methods	(3 cr, C - ECSE 291, P - ECSE 200 & COMP 202)	ECSE 304	Signals & Systems 2	(3 cr, P - ECSE 303)
ECSE 291	Electrical Measurements Lab	(2 cr, C - ECSE 210)	ECSE 305	Probability & Random Signals 1	(3 cr, P - ECSE 303 or ECSE 306)
ECSE 303	Signals & Systems 1	(3 cr, P - ECSE 210 & MATH 270; C - MATH 381)	ECSE 323	Digital Systems Design	(5 cr, P - CCOM 206, ECSE 211, ECSE 221 & ECSE 291)
ECSE 322	Computer Engineering	(3 cr, P - ECSE 221 & ECSE 200 or MECH 383)	ECSE 334	Introduction to Microelectronics	(3 cr, P - ECSE 291, ECSE 330 & ECSE 303 or ECSE 306)
ECSE 330	Introduction to Electronics	(3 cr, P - ECSE 210)	ECSE 351	Electromagnetic Fields	(3 cr, P - MATH 264 & ECSE 200)
MATH 381	Complex Variables & Transforms	(3 cr, P - MATH 264)			
Seventh (Fall) Semester			Eighth (Winter) Semester		
ECSE 352	Electromagnetic Waves	(3 cr, P - ECSE 351)	ECSE 443	Intro to Numerical Methods in EE	(3 cr, P - ECSE 221, ECSE 330 & ECSE 351 or ECSE 353)
ECSE 361	Power Engineering	(3 cr, P - ECSE 210 & ECSE 351)	ECSE 457	ECSE Design Project 2	(3 cr, P-ECSE 456)
ECSE 434	Microelectronics Laboratory	(2 cr, P - CCOM 206, ECSE 334)	FACC 400	Engineering Professional Practice	(1 cr, P - FACC100)
ECSE 456	ECSE Design Project 1	(3 cr, P - ECSE 211, ECSE 322, ECSE 323 & ECSE 330)	ECSE 4xx t2	Technical Complementary 2	(3 cr)
ECSE 4xx t1	Technical Complementary 1	(3 cr)	ECSE 4xx t3	Technical Complementary 3	(3 cr)
MIME 262	Properties of Materials in EE	(3 cr)	ECSE 4xx	Lab Complementary	(2 cr or 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. The courses ECSE 426 - Microprocessor Systems, ECSE 431 - Intro. to VLSI CAD, ECSE 435 - Mixed Signal Test Techniques, ECSE 436 - Signal Processing Hardware and ECSE 450 - Electromagnetic Compatibility, can be taken as a technical complementary or a lab complementary. If taken as a lab, they are still 3 credit courses.

* 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.

TECHNICAL AND LAB COMPLEMENTARY COURSES - ELECTRICAL ENGINEERING PROGRAM

Technical Complementaries (3 courses) 9 credits

Students following the regular Electrical 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.

Course	Course Title	Pre-Requisites and Co-Requisites
ECSE 404	Control Systems	(3 cr, C - ECSE 304 or ECSE 306)
ECSE 405	Antennas	(3 cr, P - ECSE 303 & ECSE 352)
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 414	Intro. to Telecom Networks	(3 cr, P - ECSE 304 or ECSE 306 & ECSE 322)
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 423	Fundamentals of Photonics	(3 cr, P - ECSE 352)
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 427	Operating Systems	(3 cr, P - ECSE 322 or COMP 273)
ECSE 430	Photonic Devices & Systems	(3 cr, P - ECSE 352 & PHYS 271)
ECSE 431	Introduction to VLSI CAD.	(3 cr, P - ECSE 323 & ECSE 330)
ECSE 432	Physical Basis: Transistor Devices	(3 cr, P - ECSE 212 or MIME 262, ECSE 330, ECSE 351)
ECSE 435	Mixed Signal Test Techniques	(3 cr, P - ECSE 304 & ECSE 334)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 322, ECSE 323 & ECSE 304 or ECSE 306)
ECSE 450	Electromagnetic Compatability	(3 cr, P - ECSE 221, ECSE 334 & ECSE 352 or ECSE 353)
ECSE 451	EM Transmission & Radiation	(3 cr, P - ECSE 352)
ECSE 460	Appareillage électrique	(3 cr, P - ECSE 361)
ECSE 462	Electromechanical Energy Conversion	(3 cr, P - ECSE 361)
ECSE 464	Power System Analysis 1	(3 cr, P - ECSE 361)
ECSE 465	Power Electronic Systems	(3 cr, P - ECSE 334 & ECSE 361)
ECSE 467	Comportement des réseaux électriques	(3 cr, P - ECSE 361)
ECSE 468	Electricité Industrielle	(3 cr, P - ECSE 361)
ECSE 469	Protection des réseaux électriques	(3 cr, P - ECSE 361)

Laboratory Complementary (one course) 2 or 3 credits

Students following the regular Electrical Engineering program must take one (1) course (2 or 3 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-Requisites and Co-Requisites
ECSE 426	Microprocessor Systems	(3 cr, P - ECSE 323 & CCOM 206)
ECSE 431	Introduction to VLSI CAD.	(3 cr, P - ECSE 323 & ECSE 330)
ECSE 435	Mixed Signal Test Techniques	(3 cr, P - ECSE 304 & ECSE 334)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 322, ECSE 323 & ECSE 304 or ECSE 306)
ECSE 450	Electromagnetic Compatability	(3 cr, P - ECSE 221, ECSE 334 & ECSE 352 or ECSE 353)
ECSE 485	IC Fabrication Laboratory	(2 cr, P - ECSE 334 & CCOM 206; C - ECSE 432 or ECSE 533)
ECSE 486	Power Laboratory	(2 cr, P - ECSE 330, ECSE 361 & CCOM 206)
ECSE 487	Computer Architecture Laboratory	(2 cr, P - CCOM 206; C - ECSE 425)
ECSE 488	High Frequency Laboratory	(2 cr, P - CCOM 206 & ECSE 291; C - ECSE 451)
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 492	Optical Communications Lab	(2 cr, P - CCOM 206; C - ECSE 423 or ECSE 430 or ECSE 527 or ECSE 571)
ECSE 493	Control & Robotics Lab	(2 cr, P - CCOM 206 & ECSE 291; C - ECSE 404 or ECSE 501)