

2015 / 2016 CURRICULUM - ELECTRICAL ENGINEERING

ENTRY FROM CEGEP Total credits: 109

First Semester (Fall 2015)		15 credits	Second Semester (Winter 2016)		15 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 211	Design Principles and Methods	(3 cr, C - ECSE 291, P - ECSE 200 & COMP 202)
ECSE 200	Electric Circuits 1	(3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263)	ECSE 221	Intro. to Computer Engineering	(3 cr, P - COMP 202)
MATH 262	Intermediate Calculus	(3 cr, P - MATH 141 & MATH 133)	ECSE 291	Electrical Measurements Lab	(2 cr, C - ECSE 210)
MATH 263	Ord. Differential Eqns. For Engineers	(3 cr, C - MATH 262)	FACC 100	Intro. to the Engineering Profession	(1 cr)
			MATH 264	Advanced Calculus for Engineers	(3 cr, P - MATH 262; C - MATH 263)
Third Semester (Fall 2016)		15 credits	Fourth Semester (Winter 2017)		15 credits
CCOM 206	Communication in Engineering	(3 cr)	ECSE 303	Signals & Systems 1	(3 cr, P - ECSE 210 & MATH 270; C - MATH 381)
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 351	Electromagnetic Fields	(3 cr, P - MATH 264 & ECSE 200)	ECSE 361	Power Engineering	(3 cr, P - ECSE 210 & ECSE 351)
MATH 381	Complex Variables & Transforms	(3 cr, P - MATH 264)	FACC 300	Engineering Economy	(3cr)
MATH 270	Applied Linear Algebra	(3 cr, P - MATH 263)	PHYS 271	Introduction to Quantum Physics	(3 cr, P - CIVE 281)
Fifth Semester (Fall 2017)		17 credits	Sixth Semester (Winter 2018)		17 credits
ECSE 304	Signals & Systems 2	(3 cr, P - ECSE 303)	ECSE 434	Microelectronics Laboratory	(2 cr, P - CCOM 206, ECSE 334)
ECSE 305	Probability & Random Signals 1	(3 cr, P - ECSE 303 or ECSE 306)	ECSE 443	Intro to Numerical Methods in EE	(3 cr, P - ECSE 221, ECSE 330 & ECSE 351 or ECSE 353)
ECSE 323	Digital Systems Design	(5 cr, P - CCOM 206, ECSE 211, ECSE 221 & ECSE 291)	ECSE 456	ECSE Design Project 1	(3 cr, P - ECSE 211, ECSE 322, ECSE 323 & ECSE 330)
ECSE 334	Introduction to Microelectronics	(3 cr, P - ECSE 291, ECSE 330 & ECSE 303 or ECSE 306)	ECSE 4xx t1	Technical Complementary 1	(3 cr)
ECSE 352	Electromagnetic Waves	(3 cr, P - ECSE 351)	ECSE 4xx t2	Technical Complementary 2	(3 cr)
			MIME 262	Properties of Materials in EE	(3 cr)
Seventh Semester (Fall 2018)		15 credits			
ECSE 457	ECSE Design Project 2	(3 cr, P - ECSE 456)			
ECSE 4xx	Lab Complementary	(2 cr or 3 cr)			
ECSE 4xx t3	Technical Complementary 3	(3 cr)			
FACC 400	Engineering Professional Practice	(1 cr, P - FACC100, 60 program credits)			
XXXX xxx	Humanities & Social Sciences *	(3 cr)			
XXXX xxx	Impact of Technology on Society **	(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 normally required in all prerequisites in order to proceed with the follow-on courses. (Exception: A student who fails a course with a grade of D may take an ECSE course that has it as a prerequisite, *provided that the failed course is re-taken at the same time.* Students thinking of doing this should meet with a departmental advisor.)

Students with prior programming experience can replace COMP 202 with COMP 250 upon receiving permission from the department.

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 7 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 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 423	Fundamentals of Photonics	(3 cr, P - ECSE 352)
ECSE 424	Human-Computer Interaction	(3 cr, P - ECSE 322 or COMP 251 and COMP 273)
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 464)
ECSE 462	Electromechanical Energy Conversion	(3 cr, P - ECSE 361)
ECSE 463	Electric Power Generation	(3 cr, P - ECSE 361 or ECSE 461)
ECSE 464	Power Systems Analysis	(3 cr, P - ECSE 361)
ECSE 465	Power Electronic Systems	(3 cr, P - ECSE 334 & ECSE 361)
ECSE 466	Réseaux de distribution	(3 cr, P - ECSE 361)
ECSE 467	Comportement des réseaux électriques	(3 cr, P - ECSE 462 or ECSE 464)
ECSE 468	Électricité Industrielle	(3 cr, P - ECSE 361)
ECSE 469	Protection des réseaux électriques	(3 cr, P - ECSE 464)

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)