

2018 / 2019 CURRICULUM - HONOURS ELECTRICAL ENGINEERING

EIGHT SEMESTER PROGRAM Total credits: 138

First Semester (Fall 2018)			14 credits	Second Semester (Winter 2019)			18 credits
XXXX xxx	Humanities & Social Sciences 1*	(3 cr)		CHEM 120	General Chemistry 2	(4 cr)	
MATH 140	Calculus 1	(3 cr)		MATH 141	Calculus 2	(4 cr, P - MATH 140)	
PHYS 131	Mechanics & Waves	(4 cr, C - MATH 140)		PHYS 142	Electromagnetism & Optics	(4 cr, P - PHYS 131; C - MATH 141)	
MATH 133	Linear Algebra and Geometry	(3 cr)		ECSE 202	Intro. to Software Development	(3 cr)	
FACC 100	Intro. to Engineering Profession	(1 cr)		XXXX xxx	Impact of Technology on Society **	(3 cr)	
Third Semester (Fall 2019)			18 credits	Fourth Semester (Winter 2020)			18 credits
CIVE 281	Analytical Mechanics	(3 cr, C - MATH 262, MATH 263)		ECSE 205	Probability & Statistics for Eng.	(3 cr)	
ECSE 200	Electric Circuits 1	(3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263)		ECSE 210	Electric Circuits 2	(3 cr, P - ECSE 200)	
MATH 262	Intermediate Calculus	(3 cr, P - MATH 141, MATH 133 or equiv)		COMP 250	Introduction to Computer Science	(3 cr)	
MATH 263	ODEs for Engineers	(3 cr, C - MATH 262)		ECSE 222	Digital Logic	(3 cr, P - ECSE 202)	
CCOM 206	Communication in Engineering	(3 cr)		MIME 262	Properties of Materials in EE	(3 cr)	
XXXX xxx	Humanities & Social Sciences 2*	(3 cr)		ECSE 206	Intro. to Signals & Systems	(3 cr, P - ECSE 200)	
Fifth Semester (Fall 2020)			18 credits	Sixth Semester (Winter 2021)			18 credits
ECSE 307	Linear Systems & Control	(4 cr, P - ECSE 206, ECSE 210)		ECSE 308	Intro. Comm. Sys. & Networks	(4 cr, P - ECSE 205, ECSE 206)	
ECSE 251	Electric and magnetic fields	(3 cr, P - MATH 262, ECSE 200)		ECSE 354	Electromagnetic Wave Propagation	(4 cr, P - ECSE 251)	
ECSE 324	Computer Organization	(4 cr, P - ECSE 200, ECSE 222)		ECSE 362	Fundamentals of Power Eng.	(4 cr, P - ECSE 210, ECSE 251, CIVE 281)	
ECSE 211	Design Principles and Methods	(3 cr, P - ECSE 200, ECSE 206)		ECSE 331	Electronics	(4 cr, P - ECSE 210)	
ECSE 396	Honours Research Lab 1	(1 cr)		ECSE 397	Honours Research Lab 2	(1 cr, P - ECSE 396)	
FACC 300	Engineering Economy	(3 cr)		FACC 400	Engineering Professional Practice	(1 cr, P - FACC100, 60 program credits)	
Seventh Semester (Fall 2021)			18 credits	Eighth Semester (Winter 2022)			16 credits
ECSE 498	Honours Thesis 1	(3 cr, P - CCOM 206, 42 departmental credits)		ECSE 499	Honours Thesis 2	(3 cr, P - CCOM 206, 42 departmental credits)	
ECSE xxx	Technical Complementary 1	(4 cr)		XXXX xxx	Technical Complementary 4	(3 cr)	
ECSE xxx	Technical Complementary 2	(4 cr)		XXXX xxx	Technical Complementary 5	(3 cr)	
XXXX xxx	Technical Complementary 3	(3 cr)		XXXX xxx	Technical Complementary 6	(3 cr)	
ECSE 543	Numerical Methods in EE	(3 cr, P - ECSE 324, ECSE 331, ECSE 251)		XXXX xxx	Elective Course***	(3 cr)	
ECSE 496	Honours Research Lab 3	(1 cr, P - ECSE 397)		ECSE 497	Honours Research Lab 4	(1 cr, P - ECSE 497)	

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.

* 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.

*** One 3-credit course at the 200-level or higher from any department at McGill, approved by the Undergraduate Programs Office in the Department of Electrical and Computer Engineering. For approval, please contact our office at undergrad.ece@mcgill.ca.

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 July 2018

HONOURS ELECTRICAL ENGINEERING

Technical Complementaries, 6 courses

Six technical complementaries must be chosen, as follows:

- (1) 8 credits (2 courses) from List A
- (2) 6-8 credits (2 courses) from 500 level ECSE courses
- (3) 3-4 credits (1 course) from List A, List B or from 500 level ECSE courses
- (4) 3-4 credits (1 course) from List C or from 500 level ECSE courses

A. Four-credit Technical Complementaries

ECSE 335	Microelectronics	(4 cr, P - ECSE 331)
ECSE 403	Control Systems	(4 cr, P - ECSE 307)
ECSE 408	Communication Systems	(4 cr, P - ECSE 205, ECSE 308)
ECSE 416	Telecom. Networks	(4 cr, P - COMP 250, ECSE 205 and (ECSE 308 or ECSE 316))
ECSE 433	Physical Basis of Transistor Devices	(4 cr, P - MIME 262, ECSE 331, ECSE 251)
ECSE 444	Microprocessors	(4 cr, P - ECSE 324)
ECSE 470	Electromechanical Systems	(4 cr, P - ECSE 362)

B. Other ECSE Technical Complementaries

ECSE 310	Thermodynamics of Computing	(3 cr, P - ECSE 200, ECSE 205, ECSE 222)
ECSE 325	Digital Systems	(3 cr, P - ECSE 324)
ECSE 415	Introduction to Computer Vision	(3 cr, P - ECSE 206)
ECSE 420	Parallel Computing	(3 cr, P - ECSE 427)
ECSE 421	Embedded Systems	(3 cr, P - ECSE 324)
ECSE 422	Fault Tolerant Computing	(3 cr, P - ECSE 324, COMP 250)
ECSE 424	Human-Computer Interaction	(3 cr, P - ECSE 324, COMP 250)
ECSE 425	Computer Architecture	(3 cr, P - ECSE 324)
ECSE 427	Operating Systems	(3 cr, P - ECSE 324)
ECSE 428	Software Engineering Practice	(3 cr, P - ECSE 321)
ECSE 429	Software Validation	(3 cr, P - ECSE 321 or COMP 303)
ECSE 435	Mixed Signal Test Techniques	(3 cr, P - ECSE 206, ECSE 335)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 324, ECSE 325, ECSE 206)
ECSE 446	Realistic Image Synthesis	(3 cr, P - ECSE 202, ECSE 205, COMP 250)
ECSE 451	EM Transmission & Radiation	(3 cr, P - ECSE 354)
ECSE 460	Appareillage électrique	(3 cr, P - ECSE 464)
ECSE 464	Power Systems Analysis	(3 cr, P - ECSE 362)
ECSE 466	Réseaux de distribution	(3 cr, P - ECSE 362)
ECSE 467	Comportement des réseaux électriques	(3 cr, P - ECSE 464)
ECSE 468	Electricité Industrielle	(3 cr, P - ECSE 362)
ECSE 469	Protection des réseaux électriques	(3 cr, P - ECSE 464)

C. Math and Physics Technical Complementaries

COMP 551	Applied Machine Learning
MATH 247	Honours Applied Linear Algebra
MATH 249	Honours Complex Variables
MATH 375	Honours Partial Differential Equations
MATH 547	Stochastic Processes
MATH 560	Optimization
PHYS 357	Honours Quantum physics 1
PHYS 434	Optics
PHYS 457	Honours Quantum Physics 2
PHYS 519	Advanced Biophysics
PHYS 558	Solid State Physics