

2018 / 2019 CURRICULUM - COMPUTER ENGINEERING

EIGHT SEMESTER PROGRAM Total credits: 133

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)		15 credits	Fourth Semester (Winter 2020)		18 credits
ECSE 200	Electric Circuits 1	(3 cr, P - PHYS 142 or CEGEP Equivalent; C - MATH 263)	COMP 250	Introduction to Computer Science	(3 cr)
ECSE 205	Probability & Statistics for Eng.	(3 cr)	ECSE 210	Electric Circuits 2	(3 cr, P - ECSE 200)
MATH 262	Intermediate Calculus	(3 cr, P-MATH 141, MATH 133 or equiv)	ECSE 206	Intro. to Signals & Systems	(3 cr, P - ECSE 200)
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)	ECSE 223	Model-based Programming	(3 cr, P - ECSE 202)
FACC 250	Resp. of the Prof. Engineer	(0 cr)	XXXX xxx	Humanities & Social Sciences 2*	(3 cr)
Fifth Semester (Fall 2020)		17 credits	Sixth Semester (Winter 2021)		18 credits
FACC 300	Engineering Economy	(3 cr)	MATH 240	Discrete Structures 1	(3 cr, C - MATH 133)
ECSE 211	Design Principles and Methods	(3 cr, P - ECSE 200, ECSE 202)	ECSE 310	Thermodynamics of Computing	(3 cr, P - ECSE 200, ECSE 205, ECSE 222)
ECSE 324	Computer Organization	(4 cr, P - ECSE 200, ECSE 222)	ECSE 325	Digital Systems	(3 cr, P - ECSE 324)
ECSE 331	Electronics	(4 cr, P - ECSE 210)	ECSE 321	Intro. to Software Engineering	(3 cr, P - ECSE 202)
ECSE 353	Electromagnetic Fields & Waves	(3 cr, P - MATH 262, MATH 263, ECSE 210)	ECSE 427	Operating Systems	(3 cr, P - ECSE 324)
			COMP 251	Algorithms and Data Structures	(3 cr, P - COMP 250, C - MATH 240)
Seventh Semester (Fall 2021)		17 credits	Eighth Semester (Winter 2022)		16 credits
ECSE 456	ECSE Design Project 1	(3 cr, P - CCOM 206, ECSE 211, ECSE 324, ECSE 331)	ECSE 457	ECSE Design Project 2	(3 cr, P - ECSE 456)
ECSE 308	Intro. Comm. Sys. & Networks	(4 cr, P - ECSE 205, ECSE 206)	ECSE 425	Computer Architecture	(3 cr, P - ECSE 324)
ECSE 444	Microprocessors	(4 cr, P - ECSE 324)	XXXX xxx	Technical Complementary 3	(3 cr)
XXXX xxx	Technical Complementary 1	(3 cr)	XXXX xxx	Technical Complementary 4	(3 cr)
XXXX xxx	Technical Complementary 2	(3 cr)	XXXX xxx	Elective Course***	(3 cr)
			FACC 400	Engineering Professional Practice	(1 cr, P - FACC100, 60 program credits)

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. (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 retaken at the same time. Students thinking of doing this should meet with a Departmental advisor).

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 April 2018

COMPUTER ENGINEERING

A: Technical Complementaries (3 courses) 9 credits (minimum)

Three technical complementary courses must be chosen from this list:

COMP 424	Artificial Intelligence	(3 cr, P - ECSE 205, COMP 251 & (COMP 206 or ECSE 321))
ECSE 335	Microelectronics	(4 cr, P - ECSE 331)
ECSE 412	Discrete-Time Signal Processing	(3 cr, P - ECSE 206 or ECSE 306)
ECSE 416	Telecom. Networks	(4 cr, P - COMP 250, ECSE 205 and (ECSE 308 or ECSE 316))
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 428	Software Engineering Practice	(3 cr, P - ECSE 321)
ECSE 429	Software Validation	(3 cr, P - ECSE 321 or COMP 303)
ECSE 439	Software Language Engineering	(3 cr, P - ECSE 321 or COMP 303)

B: Technical Complementaries (1 course) 3 credits (minimum)

One other technical complementary course must be chosen from list A or from list B:

ECSE 307	Linear Systems & Control	(4 cr, P - ECSE 206, ECSE 210)
ECSE 403	Control Systems	(4 cr, P - ECSE 307)
ECSE 408	Communication Systems	(4 cr, P - ECSE 205, ECSE 308)
ECSE 415	Intro. to Computer Vision	(3 cr, P - ECSE 206)
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 450	Electromagnetic Compatability	(3 cr, P - ECSE 222, ECSE 331 and (ECSE 353 or ECSE 354))
ECSE 472	Fundamentals of Circuit Simulation	(3 cr, P - ECSE 206, ECSE 331, ECSE 251)
COMP 551	Applied Machine Learning	(4 cr, P - MATH 323 or ECSE 205 or ECSE 305 or equivalent)
COMP 557	Fundamentals of Computer Graphics	(3 cr, P - MATH 222, MATH 223, COMP 206, COMP 250)