2010 / 2011 CURRICULUM - SOFTWARE ENGINEERING

EIGHT SEMESTER PROGRAM Total credits: 135

First (Fall) Semester		15 credits
CHEM 110	**General Chemistry 1**	(4 cr)
MATH 140	**Calculus 1**	(3 cr, P - High school Calculus)
PHYS 131	**Mechanics & Waves**	(4 cr)
MATH 133	**Vectors, Matrices & Geometry**	(3 cr)
FACC 100	**Intro. to Engineering Profession**	(1 cr)

Second (Winter) Semester		18 credits
CHEM 120	**General Chemistry 2**	(4 cr)
MATH 141	**Calculus 2**	(4 cr, P - MATH 139 or MATH 140 or MATH 150)
PHYS 142	**Electromagnetism & Optics**	(4 cr, P - PHYS 131)
XXXX xxx	Humanities & Social Sciences 1*	(3 cr)
XXXX xxx	Impact of Technology on Society **	(3 cr)

Third (Fall) Semester		18 credits
COMP 202	**Introduction to Computing 1**	(3 cr)
COMP 250	**Introduction to Computer Science**	(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. & Linear Alg.**	(3 cr, C - MATH 262)

Fourth (Winter) Semester		17 credits
ECSE 210	**Electric Circuits 2**	(3 cr, P - ECSE 200)
ECSE 221	**Intro. to Computer Engineering**	(3 cr, P - COMP 202)
ECSE 291	**Electrical Measurements Lab**	(2 cr, C - ECSE 210)
MATH 270	**Applied Linear Algebra**	(3 cr, P - MATH 263)
MATH 264	**Advanced Calculus**	(3 cr, P - MATH 262 or MATH 151 or MATH 152 or equiv)
XXXX xxx	Humanities & Social Sciences 2*	(3 cr)

Fifth (Fall) Semester		18 credits
COMP 251	**Data Struct. & Algorithms**	(3 cr, P - COMP 203 or COMP 250)
ECSE 211	**Design Methodology and Principles**	(3 cr, C - ECSE 291, P - ECSE 200 & COMP 202)
ECSE 306	**Fundamentals of Signals & Systems**	(3 cr, P - ECSE 210 & MATH 270 or MATH 271)
ECSE 321	**Intro. to Software Engineering**	(3 cr, P - COMP 202 or COMP 208)
ECSE 322	**Computer Engineering**	(3 cr, P - ECSE 221 & ECSE 200 or MECH 383)
MIME 310	**Engineering Economy**	(3 cr)

Sixth (Winter) Semester		18 credits
COMP 206	**Introduction to Software Systems**	(3 cr, P - COMP 202 or COMP 250)
COMP 302	**Prog. Languages & Paradigms**	(3 cr, P - COMP 250)
ECSE 305	**Probability & Random Signals 1**	(3 cr, P - ECSE 303 or ECSE 306)
ECSE 330	**Introduction to Electronics**	(3 cr, P - ECSE 210)
ECSE 427	**Operating Systems**	(3 cr, P - ECSE 322 or COMP 273)
MATH 363	**Discrete Mathematics**	(3 cr, P - MATH 263 & MATH 264)

Seventh (Fall) Semester		16 credits
COMP 360	**Algorithm Design Techniques**	(3 cr, P - COMP 251, MATH 240 or MATH 363)
ECSE 420	**Parallel Computing**	(3 cr, P - ECSE 427)
ECSE 429	**Software Validation**	(3 cr, P - ECSE 321 or COMP 303
ECSE 456	**ECSE Design Project 1**	(3 cr, P - CCOM 206, COMP 302, ECSE 211, ECSE 306, ECSE 321, ECSE 322)
XXXX xxx t1	Technical Complementary 1	(3 cr)
FACC 400	**Engineering Professional Practice**	**(1 cr, P - FACC100)**

Eighth (Winter) Semester		15 credits
COMP 421	**Database Systems**	(3 cr, P - COMP 206, COMP 251 & COMP 302)
ECSE 428	**Software Engineering Practice**	(3 cr, P - ECSE 321 or COMP 335)
ECSE 457	**ECSE Design Project 2**	(3 cr, P-ECSE 456)
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.

* 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).

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 May 2010

TECHNICAL COMPLEMENTARY COURSES - SOFTWARE ENGINEERING PROGRAM

Technical Complementaries (3 courses) 9-11 credits

Students following the Software Engineering program should take 9-11 credits, of which 3 credits must be from list A, and 6-8 credits from list B. 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.

Software Engineering Technical Complementaries - GROUP A:

ECSE 404	Control Systems	(3 cr, C - 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)	**OR**
COMP 535	Computer Networks 1	(3 cr, P- COMP 310/ECSE 427)	
ECSE 422	Fault Tolerant Computing	(3 cr, P - ECSE 322)	
ECSE 504	Sampled Data Control	(3 cr, P - ECSE 304 or ECSE 306; C - ECSE 404)	
ECSE 529	Image Processing & Communication	(3 cr, P - ECSE 304 or ECSE 306)	
ECSE 532	Computer Graphics	(3 cr, P - ECSE 322)	**OR**
COMP 557	Fundamentals of Computer Graphics	(3 cr, P - MATH 223, COMP 206 & COMP 251)	
COMP 330	Theoretical Aspects: Comp. Sci.	(3 cr, P - COMP 251)	
COMP 350	Numerical Computing	(3 cr, P - MATH 222, MATH 223 & one of COMP 202, COMP 208 or COMP 250 or equiv)	
COMP 409	Concurrent Programming	(3 cr, P - COMP 251, COMP 302 & COMP 310 or ECSE 427)	
COMP 424	Topics: Artificial Intelligence 1	(3 cr, P - COMP 206, COMP 251 & COMP 302)	
COMP 520	Compiler Design	(3 cr, P - COMP 273 & COMP 302)	
COMP 566	Discrete Optimization 1	(3 cr, P - COMP 360 & MATH 223)	
COMP 575	Fundamentals of Distributed Algorithms	(3 cr, P - COMP 310)	

Software Engineering Technical Complementaries - GROUP B:

ECSE 323	Digital Systems Design	(5 cr, P - CCOM 206, ECSE 211, ECSE 221 & ECSE 291)
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 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 530	Logic Synthesis	(3 cr, P - ECSE 323)