

# Computer Engineering Curriculum - Fall 2010

## Non-CEGEP Entry

<b>1st Semester (Fall)</b>		<b>15 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
CHEM 110	General Chemistry 1	4	-
FACC 100	Introduction to the Engineering Profession	1	-
MATH 133	Linear Algebra and Geometry	3	-
MATH 140	Calculus 1	3	-
PHYS 131	Mechanics and Waves	4	C - MATH 140
<b>2nd Semester (Winter)</b>		<b>18 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
CHEM 120	General Chemistry 2	4	-
MATH 141	Calculus 2	4	P - MATH 140
PHYS 142	Electromagnetism and Optics	4	P - PHYS 131 / C - MATH 141
CS	Complementary Studies Group A (Impact)	3	-
CS	Complementary Studies Group B (HSSML) - 1	3	-
<b>3rd Semester (Fall)</b>		<b>18 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
CCOM 206	Communication in Engineering	3	-
CIVE 281	Analytical Mechanics	3	C - MATH 262, MATH 263
COMP 202	Introduction to Computing 1	3	P - MATH 140, MATH 141
ECSE 200	Electric Circuits 1	3	P - PHYS 142 or equivalent / C - MATH 263
MATH 262	Intermediate Calculus	3	P - MATH 141, MATH 133
MATH 263	Ordinary Differential Equations for Engineers	3	C - MATH 262
<b>4th Semester (Winter)</b>		<b>17 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
ECSE 210	Electric Circuits 2	3	P - ECSE 200
ECSE 211	Design Principles and Methods	3	P - ECSE 200, COMP 202 / C - ECSE 291
ECSE 221	Introduction to Computer Engineering	3	P - COMP 202
ECSE 291	Electrical Measurements Laboratory	2	C - ECSE 210
MATH 264	Advanced Calculus for Engineers	3	P - MATH 262 / C - MATH 263
MATH 270	Applied Linear Algebra	3	P - MATH 263
<b>5th Semester (Fall)</b>		<b>17 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
ECSE 306	Fundamentals of Signals and Systems	3	P - ECSE 210, MATH 270
ECSE 322	Computer Engineering	3	P - ECSE 200 or MECH 383, ECSE 221
ECSE 323	Digital System Design	5	P - CCOM 206 or EDEC 206, ECSE 211, ECSE 221, ECSE 291
ECSE 330	Introduction to Electronics	3	P - ECSE 210
ECSE 353	Electromagnetic Fields and Waves	3	P - ECSE 210, MATH 264
<b>6th Semester (Winter)</b>		<b>18 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
COMP 250	Introduction to Computer Science	3	P - MATH 140, MATH 141
ECSE 305	Probability and Random Signals 1	3	P - ECSE 303 or ECSE 306
ECSE 321	Introduction to Software Engineering	3	P - COMP 202 or COMP 208
ECSE 425	Computer Organization and Architecture	3	P - ECSE 322, ECSE 323
ECSE 427	Operating Systems	3	P - ECSE 322 or COMP 273
MATH 363	Discrete Mathematics	3	P - MATH 263, MATH 264
<b>7th Semester (Fall)</b>		<b>18 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
COMP 251	Data Structures and Algorithms	3	P - COMP 203 or COMP 250
ECSE 334	Introduction to Microelectronics	3	P - ECSE 291, ECSE 303 or ECSE 306, ECSE 330
ECSE 414	Introduction to Telecommunication Networks	3	P - ECSE 322, ECSE 304 or ECSE 306
ECSE 426	Microprocessor Systems	3	P - CCOM 206 or EDEC 206, ECSE 323
ECSE 456	ECSE Design Project 1	3	P - ECSE 211, ECSE 322, ECSE 323, ECSE 330 / CR - FACC 400
ECSE xxx	Technical Complementary	3	-
<b>8th Semester (Winter)</b>		<b>18 Credits</b>	<b>Pre-requisites/Co-requisites Required</b>
ECSE 457	ECSE Design Project 2	3	P - ECSE 456
FACC 400	Engineering Professional Practice	1	P - FACC 100, 60 program credits
MIME 310	Engineering Economy	3	-
ECSE xxx	Lab Complementary	2	-
ECSE xxx	Technical Complementary	3	-
ECSE xxx	Technical Complementary	3	-
CS	Complementary Studies Group B (HSSML) - 2	3	-

Technical and Lab Complementary courses are selected from an approved list given on the next page.

The Complementary Studies (CS) courses are Impact of Technology courses (Group A) and Humanities & Social Sciences, Management Studies and Law courses (Group B). These must be chosen from an approved list of courses/departments, found in the program list in the *Programs, Courses and University Regulations Calendar* ([www.mcgill.ca/study/2010-2011/faculties/engineering/undergraduate/ug\\_engineering\\_academic\\_programs](http://www.mcgill.ca/study/2010-2011/faculties/engineering/undergraduate/ug_engineering_academic_programs)) under "Complementary Studies."

Students are responsible for satisfying pre/co-requisites and verifying with their department that they are meeting the requirements of their program.

# Technical Complementary Courses - Computer Engineering

One course must be chosen from List A and two courses from List B. The course chosen from List A is meant to enhance the Body of Knowledge while the courses chosen from List B are to provide breadth.

## Technical Complementaries

### List A

3 credits from the following:

	Credits
ECSE 424 Human-Computer Interaction	3
ECSE 428 Software Engineering Practice	3
ECSE 431 Introduction to VLSI CAD	3

### List B

6 credits from the following:

	Credits
COMP 424 Artificial Intelligence	3
ECSE 404 Control Systems	3
ECSE 411 Communications Systems 1	3
ECSE 412 Discrete Time Signal Processing	3
ECSE 420 Parallel Computing	3
ECSE 421 Embedded Systems	3
ECSE 422 Fault Tolerant Computing	3
ECSE 429 Software Validation	3
ECSE 436 Signal Processing Hardware	3
ECSE 443 Introduction to Numerical Methods in Electrical Engineering	3
ECSE 450 Electromagnetic Compatibility	3
ECSE 530 Logic Synthesis	3
ECSE 532 Computer Graphics	3
ECSE 548 Introduction to VLSI Systems	3

## Laboratory Complementaries

One course must be chosen from the following list. Note that the lab course is intended to strengthen the practical knowledge within one of the body of knowledge core units and as such should complement one of the body of knowledge core unit lecture courses, namely ECSE 334, ECSE 414, or ECSE 425.

2-3 credits from the following:

	Credits
ECSE 434 Microelectronics Laboratory	2
ECSE 436 Signal Processing Hardware	3
ECSE 487 Computer Architecture Laboratory	2
ECSE 489 Telecommunication Network Laboratory	2
ECSE 490 Digital Signal Processing Laboratory	2
ECSE 491 Communication Systems Laboratory	2
ECSE 493 Control and Robotics Laboratory	2