2008 / 2009 CURRICULUM - ELECTRICAL ENGINEERING

EIGHT SEMESTER PROGRAM **Total credits: 136**

First (Fall) Semester		18 credits
CHEM 110	**General Chemistry 1**	(4 cr)
COMP 202	**Introduction to Computing 1**	(3 cr)
MATH 133	**Vectors, Matrices & Geometry**	(3 cr)
MATH 150	**Calculus A**	(4 cr)
PHYS 131	**Mechanics & Waves**	(4 cr)

Second (Winter) Semester		17 credits
CHEM 120	**General Chemistry 2**	(4 cr)
MATH 152	**Calculus E**	(4 cr, P - MATH 150)
MIME 221	**Engineering Professional Practice**	(2 cr)
PHYS 142	**Electromagnetism & Optics**	(4 cr, P - PHYS 131)
HSS	Humanities/Social Sciences	(3 cr)

Third (Fall) Semester		18 credits
CIVE 281	**Analytical Mechanics**	(3 cr, C - MATH 262 & MATH 263)
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 263	**Ord. Differential Eqns. & Linear Alg.**	(3 cr, C - MATH 262)
MATH 264	**Advanced Calculus**	(3 cr, P - MATH 262 or MATH 151 or MATH 152 or equiv)
MIME 262	**Properties of Materials in Elect. Eng.**	(3 cr)

Fourth (Winter) Semester		17 credits
ECSE 210	**Electric Circuits 2**	(3 cr, P - ECSE 200)
ECSE 211	**Design Methodology and Principles**	(3 cr, C - ECSE 291, P - ECSE 200 & COMP 202)
ECSE 291	**Electrical Measurements Lab**	(2 cr, C - ECSE 210)
ECSE 322	**Computer Engineering**	(3 cr, P - ECSE 221 & ECSE 200 or MECH 383)
EDEC 206	**Communication in Engineering**	(3 cr)
MATH 271	**Linear Algebra & PDEs**	(3 cr, P - MATH 263 & MATH 264)

Fifth (Fall) Semester		17 credits
ECSE 303	**Signals & Systems 1**	(3 cr, P - ECSE 210 & MATH 271; C - MATH 381)
ECSE 323	**Digital Systems Design**	(5 cr, P - EDEC 206, ECSE 221 & ECSE 291)
ECSE 330	**Introduction to Electronics**	(3 cr, P - ECSE 210)
ECSE 351	**Electromagnetic Fields**	(3 cr, P - MATH 264 & ECSE 200)
MATH 381	**Complex Variables & Transforms**	(3 cr, P - MATH 264)

Sixth (Winter) Semester		18 credits
ECSE 304	**Signals & Systems 2**	(3 cr, P - ECSE 303)
ECSE 305	**Probability & Random Signals 1**	(3 cr, P - ECSE 303 or ECSE 306)
ECSE 334	**Introduction to Microelectronics**	(3 cr, P - ECSE 291, ECSE 330 & ECSE 303 or ECSE 306)
ECSE 361	**Power Engineering**	(3 cr, P - ECSE 210 & ECSE 351)
PHYS 271	**Quantum Physics**	(3 cr, P - CIVE 281)
ECSE 4xx t1	Technical Complementary 1	(3 cr)

Seventh (Fall) Semester		15 credits
ECSE 352	**Electromagnetic Waves**	(3 cr, P - ECSE 351)
ECSE 434	**Microelectronics Laboratory**	(2 cr, P - EDEC 206, ECSE 334)
ECSE 443	**Numerical Methods in Elect. Eng.**	(3 cr, P - ECSE 221, ECSE 330 & ECSE 351 or ECSE 353)
ECSE 474	**Design Project 1**	(1 cr, P - EDEC 206, ECSE 211 & 42 departmental credits from EE, CE and CS)
ECSE 4xx t2	Technical Complementary 2	(3 cr)
XXXX xxx g1	General Complementary 1	(3 cr)

Eighth (Winter) Semester		16 credits
ECSE 475	**Design Project 2**	(2 cr, P - ECSE 474)
MIME 310	**Engineering Economy**	(3 cr)
ECSE 4xx t3	Technical Complementary 3	(3 cr)
ECSE 4xx t4	Technical Complementary 4	(3 cr)
ECSE 4xx	Lab Complementary	(2 cr or 3 cr)
XXXX xxx g2	General Complementary 2	(3 cr)

Core courses are shown in boldface above. All core courses must be passed with a grade "C" or better. Also, a grade of "C" is required for an ECSE xxx core course in order to proceed with its follow-on ECSE xxx course(s), and a grade of "C" is required for a MATH xxx course in order to proceed with its follow-on MATH xxx course(s). A grade of "D" is only acceptable for technical, lab and general complementaries.

Technical Complementary courses are selected from the list given on the next page.

The Lab Complementary course is normally taken in conjuction 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 credits courses.

The Humanities/Social Sciences course (HSS) must be chosen from the list at ***, Humanities/Social Sciences course: This course must be chosen from the list at http://www.mcgill.ca/engineering/student/sao/newstudents/courses/#HUMANITIES

General Complementary courses must be chosen according to the rules in Section 8.3.4 of the 2008-2009 McGill University Calendar, page 229.

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.

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TECHNICAL AND LAB COMPLEMENTARY COURSES - ELECTRICAL ENGINEERING PROGRAM

Technical Complementaries (4 courses) 12 credits

Students following the regular Electrical Engineering program must take 4 courses (12 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 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)
ECSE 425	Computer Org. & Architecture	(3 cr, P - ECSE 322 & ECSE 323)
ECSE 426	Microprocessor Systems	(3 cr, P - ECSE 323 & EDEC 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 - MIME 262, ECSE 330, ECSE 351 & PHYS 271)
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 361)
ECSE 462	Electromechanical Energy Conversion	(3 cr, P - ECSE 361)
ECSE 463	Matériaux de l'électrotechnique	(3 cr, P - ECSE 361)
ECSE 464	Power System Analysis 1	(3 cr, P - ECSE 361)
ECSE 465	Power Electronic Systems	(3 cr, P - ECSE 334 & ECSE 361)
ECSE 467	Comportement des réseaux électriques	(3 cr, P - ECSE 361)
ECSE 468	Electricité Industrielle	(3 cr, P - ECSE 361)
ECSE 469	Protection des réseaux électriques	(3 cr, P - ECSE 361)
COMP 535	Computer Networks 1	(3 cr, P - COMP 310)

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 & EDEC 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 & EDEC 206; C- ECSE 432 or ECSE 533)
ECSE 486	Power Laboratory	(2 cr, P - ECSE 334, ECSE 361 & EDEC 206)
ECSE 487	Computer Architecture Laboratory	(2 cr, P - EDEC 206; C- ECSE 425)
ECSE 488	High Frequency Laboratory	(2 cr, P - EDEC 206 & ECSE 291; C- ECSE 451)
ECSE 489	Telecommunication Network Laboratory	(2 cr, P - EDEC 206; C - ECSE 414 or ECSE 528 or COMP 535)
ECSE 490	Digital Signal Processing Lab	(2 cr, P - ECSE 291 & EDEC 206; C- ECSE 412 or ECSE 512)
ECSE 491	Communications Systems Lab	(2 cr, P - EDEC 206 & ECSE 291;C- ECSE 411 or ECSE 511)
ECSE 493	Control & Robotics Lab	(2 cr, P - EDEC 206 & ECSE 291;C- ECSE 404 or ECSE 501)

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