2008 / 2009 CURRICULUM - COMPUTER ENGINEERING

CIVE 281 Analytical Mechanics (3 cr. C - MATH 202 & MATH 200 methods) COMP 250 Introduction to Computer Science (3 cr. P COMP 202 Introduction to Computing 1 (3 cr. P (3 cr. P ECSE 200 Electric Circuits 1 (3 cr. P - PHYS) MATH 263 Ord. Differential Eqns. & Linear Alg. (3 cr. P-AMTH 141 & MATH 150 (3 cr. P - ComP 150 (3 c					110	I CEGEP Total credits:	ENTRY FROM
COMP 202 Introduction to Computing 1 (a m) MATH 262 Intermediate Calculus (a m) MATH 263 Ord. Differential Eqns. & Linear Alg. (a m) (a m) (a m) MATH 264 Advanced Calculus (a m) (a m) (a m) MATH 263 Ord. Differential Eqns. & Linear Alg. (a m) MATH 264 (a m) (a m) (a m) MATH 264 Advanced Calculus (a m) (a m) (a m) (a m) (a m) MATH 264 Advanced Calculus (a m) (a m) XXXX xxx g1 General Complementary 1 (a m) (a m) MATH 270 Applied Linear Algebra (a m) (a m) Third (Fall) Semester 14 credits Fourth (Winter) Semester 15 cred ECSE 210 Electric Circuits 2 (a m) (a m) ECSE 210 EcSE 321 Introduction to Electronics (a m) <	dits	17 credits	Winter) Semester	Second (Semester	First (Fall
COMP 202 Introduction to Computing 1 (arr, P-AMTH 141 & MATH 133 or equal) ECSE 200 Electric Circuits 1 (brr, P-AMTH 133 or equal) MATH 263 Ord. Differential Eqns. & Linear Alg. (brr, P-AMTH 141 & MATH 133 or equal) XXXX xxx g1 General Complementary 1 (brr, P-AMTH 1428) (brr, P-AMTH 1428) (brr, P-AMTH 1428) (brr, P-AMTH 1428) XXXX xxx g1 General Complementary 1 (brr, P-CME Fourth (Winter) Semester 15 cred ECSE 201 Electric Circuits 2 (brr, P-EOSE 200) ECSE 306 Fourth (Winter) Semester (brr, P-COMP ECSE 210 Electrical Measurements Lab (brr, P-EOSE 200) ECSE 300 Fourdamentals of Signals & Systems (brr, P-COMP ECSE 322 Computer Engineering (brr, P-COMP 200 or COMP (brr, P-COMP 200 or COMP (brr, P-COMP (brr, P-COMP Fifth (Fall) Semester 17 credits Sixth (Winter) Semester 16 cred COMP 251 Data Struct, & Algorithms (brr, P-COMP 200 or COMP (brr, P-EOSE 300 or EOSE 300 or		(3 cr)	Introduction to Computer Science	COMP 250		Analytical Mechanics	CIVE 281
MATH 263 Ord. Differential Eqns. & Linear Alg. (3 or, C - MATH 262) MATH 264 Advanced Calculus (3 or, P - MATH 263) XXXX xxx g1 General Complementary 1 (3 or) MATH 264 Advanced Calculus (3 or, P - MATH 263) XXXX xxx g1 General Complementary 1 (3 or) MATH 264 Advanced Calculus (3 or, P - MATH 263) Third (Fall) Semester 14 credits Fourth (Winter) Semester 15 or MATH 262 ECSE 210 Electric Circuits 2 (3 or, P - ECSE 281, P - ECSE 281, P - ECSE 282) ECSE 306 Fundamentals of Signals & Systems (3 or, P - COMP 202) ECSE 221 Design Methodology and Principles (3 or, P - ECSE 281, P - ECSE 204) ECSE 302 Intro. to Software Engineering 200 (3 or, P - COMP 202) ECSE 232 Computer Engineering 200 receivation in Ecse 201 (3 or, P - COMP 202) XXXX xxx Basic Science Complementary (3 or, P - ECSE 201) ECSE 303 receivation in Engineering 200 receivation in Engineering 200 receivation in Ecse 201 (3 or, P - COMP 202) (2 or, P - COMP 203 receivation in Ecse 201 (3 or, P - COMP 203 receivation in Ecse 201 (3 or, P - COMP 203 receivation in Ecs		(3 cr, P - PHYS 142 Equivalent; C - MAT	Electric Circuits 1	ECSE 200	,	Introduction to Computing 1	COMP 202
MATH 263 Ord. Differential Eqns. & Linear Alg. (3 cr. C - MATH 282) MATH 264 Advanced Calculus (3 cr. P - MATH 157 or MATH 150 o	MP 202)	(3 cr, P - COMP 202	Intro. to Computer Engineering	ECSE 221		Intermediate Calculus	MATH 262
MIME 221 Engineering Professional Practice (2 or) Third (Fall) Semester 14 credits Fourth (Winter) Semester 15 cred ECSE 210 Electric Circuits 2 (3 or, P - ECSE 200) ECSE 306 Fundamentals of Signals & Systems (3 or, P - ECSE 200) ECSE 211 Design Methodology and Principles (3 or, C - ECSE 200) ECSE 306 Fundamentals of Signals & Systems (3 or, P - ECSE 200) ECSE 221 Electrical Measurements Lab (2 or, C - ECSE 201) ECSE 330 Introduction to Electronics (3 or, P - ECSE 200) ECSE 322 Computer Engineering (2 or, C - ECSE 201) (2 or, P - ECSE 200) (3		(3 cr, P - MATH 262 151 or MATH 152 or	Advanced Calculus	MATH 264		Ord. Differential Eqns. & Linear Alg.	MATH 263
Third (Fall) Semester 14 credits Fourth (Winter) Semester 15 cred ECSE 210 Electric Circuits 2 (ar, P- ECSE 200) ECSE 306 Fundamentals of Signals & Systems (ar, P- ECSE 200) ECSE 211 Design Methodology and Principles (ar, P- ECSE 201) ECSE 306 Fundamentals of Signals & Systems (ar, P- ECSE 200) ECSE 221 Electrical Measurements Lab (2 or, C ECSE 210) (2 or, C ECSE 210) ECSE 300 Introduction to Electronics (ar, P- ECSE 200) XXXX xxx Basic Science Complementary (3 or) P-ECSE 201 & ECSE 300 Introduction to Electronics (3 or, P- ECSE 200) Fifth (Fall) Semester 17 credits Sixth (Winter) Semester 16 cred COMP 251 Data Struct. & Algorithms 200 or MECH 303 or COMP 203 or COMP 203 or COMP 203 or ECSE 303 Discrete Mathematics (ar, P- COMP 203 or ECSE 303 or ECSE	ATH 263)	(3 cr, P - MATH 263	Applied Linear Algebra	MATH 270	(3 cr)	General Complementary 1	XXXX xxx g1
ECSE 210 Electric Circuits 2 (3 or, P - ECSE 200) ECSE 211 Design Methodology and Principles (3 or, P - ECSE 201) ECSE 321 Intro. to Software Engineering (3 or, P - COMP 200) ECSE 291 Electrical Measurements Lab (3 or, P - ECSE 201) (3 or, P - ECSE 201) ECSE 322 Introduction to Electronics (3 or, P - ECSE 201) ECSE 322 Computer Engineering (3 or, P - ECSE 201) (3 or, P - ECSE 201) (3 or, P - ECSE 201) ECSE 330 Introduction to Electronics (3 or, P - ECSE 201) XXXX xxx Basic Science Complementary (3 or, P - ECSE 201) (3 or		(2 cr)	Engineering Professional Practice	MIME 221			
ECSE 210 Design Methodology and Principles 200 & COMP 2021 (3 cr, P - ECSE 201) 200 & COMP 2021 ECSE 321 Intro. to Software Engineering 200 & COMP 2021 (3 cr, P - ECSE 201) 200 & COMP 2021 ECSE 221 Electrical Measurements Lab ECSE 322 Computer Engineering Computer Engineering XXXX xxx (3 cr, P - ECSE 210) (3 cr, P - ECSE 213 & ECSE 200 or MECH 333) ECSE 330 Introduction to Electronics EDEC 206 (3 cr, P - ECSE 200 or MECH 333) Fifth (Fall) Semester 17 credits Sixth (Winter) Semester 16 cred 200 gr (P - ECSE 303 or COMP 200 ECSE 323 Digital Systems Design (3 cr, P - COMP 203 or COMP 200 Sixth (Winter) Semester 16 cred 300 gr (P - COMP 200 ECSE 323 Digital Systems Design (3 cr, P - ECSE 303 or ECSE 306) (3 cr, P - ECSE 303 or ECSE 306) Sixth (Winter) Semester 16 cred 300 gr (P - ECSE 303 or ECSE 300) ECSE 323 Digital Systems Design (3 cr, P - ECSE 303 or COMP 273) (3 cr, P - ECSE 303 or COMP 273) ECSE 427 Computer Org. & Architecture 323 & ECSE 334 (3 cr, P - ECSE 303 & ECSE 332 ECSE 427 Operating Systems (3 cr, P - ECSE 322 or COMP 273) ECSE 426 Microprocessor Systems 206) (3 cr, P - ECSE 303 & ECSE 322 or COMP 273) ECSE 474 Design Project 2 (2 cr, P - ECSE 322 or COMP 273) (3 cr, P - ECSE 474)	dits	15 credits	Vinter) Semester	-ourth (V	14 credits) Semester	Third (Fall
ECSE 211 Design Methodology and Principles (3 or, C - CCSE 201, P - ECSE 200 & COMP 202) ECSE 321 Intro. to Software Engineering (3 or, P - COMP 200 & COMP 202) ECSE 322 Computer Engineering (3 or, P - ECSE 21 & ECSE 200 or MECH 383) ECSE 330 Introduction to Electronics (3 or, P - COMP 200 or MECH 383) XXXX xxx Basic Science Complementary 17 credits Sixth (Winter) Semester 16 credits Fifth (Fall) Semester 17 credits Sixth (Winter) Semester 16 credits COMP 251 Data Struct. & Algorithms (3 or, P - COMP 203 or COMP 250) COMP 535 Computer Networks 1 (3 or, P - COMP 20 or ECSE 304) (3 or, P - COMP 203 or COMP 260) ECSE 323 Digital Systems Design (3 or, P - ECSE 300 or ECSE 2010 (3 or, P - ECSE 302 or COMP 273) ECSE 414 Introduction to Microelectronics 306 (3 or, P - ECSE 306 ECSE 427 Operating Systems (3 or, P - ECSE 322 or COMP 273) (3 or, P - ECSE 322 or COMP 273) ECSE 474 Design Project 1 (1 or, P - ECSE 302 21 & ECSE 474 ECSE 475 Design Project 2 (2 or, P - ECSE 474) Miles 210 (3 or) Seventh (Fall) Semester 16 credits (2 or, P - ECSE 474) Design Project 1 (1 or, P - ECSE 302 21 &		(3 cr, P - ECSE 210 270 or MATH 271)	Fundamentals of Signals & Systems	ECSE 306	(3 cr, P - ECSE 200)	Electric Circuits 2	ECSE 210
ECSE 291 Electrical Measurements Lab (2 cr. C - ECSE 210) (3 cr. P - ECSE 221 & ECSE 200 (3 cr. P - ECSE 221 & ECSE 200 (3 cr. P - ECSE 221 & ECSE 200 (3 cr. P - ECSE 221 & ECSE 200 (3 cr. P - ECSE 221 & ECSE 200 (3 cr. P - ECSE 221 & ECSE 200 (3 cr. P - ECSE 200		(3 cr, P - COMP 202	Intro. to Software Engineering	ECSE 321		Design Methodology and Principles	ECSE 211
ECSE 322 Computer Engineering 200 or MECH 383) EDEC 200 Communication in Engineering (3 cr) XXXX xxx Basic Science Complementary (3 cr) MATH 363 Discrete Mathematics (3 cr) Fifth (Fall) Semester 17 credits Sixth (Winter) Semester 16 cred COMP 251 Data Struct. & Algorithms (3 cr, P - COMP 203 or COMP COMP 535 Computer Networks 1 (3 cr, P - COMP ECSE 305 Probability & Random Signals 1 (3 cr, P - ECSE 303 or ECSE 306) (5 cr, P - ECSE 201) cr ECSE 414 Introduction to Microelectronics 306 ECSE 323 Digital Systems Design (5 cr, P - MATH 264 & ECSE 210) (3 cr, P - ECSE 322 or COMP ECSE 425 Computer Org. & Architecture 3230 ECSE 427 Operating Systems (3 cr, P - ECSE 322 or COMP (3 cr, P - ECSE 322 or COMP ECSE 474 Design Project 1 (1 cr, P - ECSE 200) ECSE 475 Design Project 2 (2 cr, P - ECSE 474) MiME 310 Engineering Economy (3 cr) MIME 310 Engineering Economy (3 cr) (3 cr) (3 cr) (3 cr)	SE 210)	(3 cr, P - ECSE 210)	Introduction to Electronics	ECSE 330	,	Electrical Measurements Lab	ECSE 291
XXXX xxx Basic Science Complementary (3 or) MATH 363 Discrete Mathematics (3 or, P. MATH 264) Fifth (Fall) Semester 17 credits Sixth (Winter) Semester 16 cred COMP 251 Data Struct. & Algorithms (3 or, P. COMP 203 or COMP COMP 535 Computer Networks 1 (3 or, P. COMP ECSE 305 Probability & Random Signals 1 (3 or, P. ECSE 303 or ECSE 00 CSE 414 Intro. to Telecom Networks 30 & COMP ECSE 323 Digital Systems Design (3 or, P. ECSE 201) (3 or, P. ECSE 303 or ECSE (3 or, P. ECSE 303 or ECSE 201) (3 or, P. ECSE 302) (3 or, P. ECSE 302) (3		(3 cr)	Communication in Engineering	EDEC 206		Computer Engineering	ECSE 322
COMP 251 Data Struct. & Algorithms (3 cr, P - COMP 203 or COMP 250) COMP 535 Computer Networks 1 (3 cr, P - COMP 250) ECSE 305 Probability & Random Signals 1 (3 cr, P - ECSE 303 or ECSE 306) or ECSE 414 Intro to Telecom Networks (3 cr, P - ECSE 306) ECSE 323 Digital Systems Design (5 cr, P - EDEC 206, ECSE 221 & ECSE 201) (5 cr, P - EDEC 206, ECSE 221 & ECSE 201) ECSE 334 Introduction to Microelectronics 306 & ECSE 303 306) (3 cr, P - ECSE 306 & ECSE 323 ECSE 427 Operating Systems (3 cr, P - ECSE 322 or COMP 273) (3 cr, P - ECSE 322 or COMP 273) ECSE 474 Design Project 1 (3 cr, P - ECSE 201 & ECSE 422 depart from EE, CE and ECSE 475 (3 cr, P - ECSE 474) MIME 310 Engineering Economy (3 cr) (3 cr) (3 cr)	.TH 263 & MATH	(3 cr, P - MATH 263 264)	Discrete Mathematics	MATH 363		Basic Science Complementary	XXXX xxx
COMP 231 Data Struct. & Algorithms 250) ECSE 305 Probability & Random Signals 1 (3 or, P - ECSE 303 or ECSE 300) or ECSE 414 Introduction to Microelectronics 3 or, P - ECSE 300 or ECSE 300 ECSE 323 Digital Systems Design (5 or, P - ECSE 201, ECSE 221 & ECSE 291) (5 or, P - ECSE 291) ECSE 425 Computer Org. & Architecture 300, 300, 300, 300, 300, 300, 300, 300	dits	16 credits	nter) Semester	Sixth (Wi		Semester	Fifth (Fall
ECSE 303 Probability & Random Signals 1 306 306 306 306 306 306 & ECSE 323 ECSE 353 Electromagnetic Fields & Waves (3 cr, P - EDEC 206, ECSE 211 & ECSE 291) ECSE 425 Computer Org. & Architecture 306 306 306 306 ECSE 427 Operating Systems (3 cr, P - ECSE 322 or COMP ECSE 426 Microprocessor Systems (3 cr, P - ECSE 323) 306 (3 cr, P - ECSE 323) (3 cr, P - ECSE 323) <td< td=""><td>)MP 310)</td><th>(3 cr, P - COMP 310</th><th>Computer Networks 1</th><th>COMP 535</th><th></th><td>Data Struct. & Algorithms</td><td>COMP 251</td></td<>)MP 310)	(3 cr, P - COMP 310	Computer Networks 1	COMP 535		Data Struct. & Algorithms	COMP 251
ECSE 323 Digital Systems Design (5 cr, P - EDEC 206, ECSE 221 & ECSE 291) ECSE 334 Introduction to Microelectronics (3 cr, P - ECSE 308 & ECSE 474 & Design Project 1 & ECSE 475 & Design Project 2 & (2 cr. P - ECSE 474 & ECSE 474 & ECSE 475 & Design Project 2 & (2 cr. P - ECSE 474 & ECSE 474 & ECSE 475 & ECSE 475 & Design Project 2 & (2 cr. P - ECSE 474 & ECSE 474 & ECSE 308 &		(3 cr, P - ECSE 304 306 & ECSE 322)	Intro. to Telecom Networks	or ECSE 414		Probability & Random Signals 1	ECSE 305
ECSE 353 Electromagnetic Fields & Waves (3 cr, P - MATH 264 & ECSE 210) (3 cr, P - ECSE 322 or COMP ECSE 425 Computer Org. & Architecture (3 cr, P - ECSE 323) ECSE 427 Operating Systems (3 cr, P - ECSE 322 or COMP ECSE 426 Microprocessor Systems (3 cr, P - ECSE 206) ECSE 427 Operating Systems (3 cr, P - ECSE 322 or COMP ECSE 474 Design Project 1 (1 cr, P - ECSE 206) ECSE 474 Design Project 1 (1 cr, P - ECSE 322 or COMP ECSE 474 Design Project 1 (1 cr, P - ECSE 322 or COMP Seventh (Fall) Semester 16 credits ECSE 475 Design Project 2 (2 cr, P - ECSE 474) MIME 310 Engineering Economy (3 cr) (3 cr) (3 cr) XXXX xxxt 12 Technical Complementary 2 (3 cr) (3 cr)	SE 291, ECSE	(3 cr, P - ECSE 291, 330 & ECSE 303 or	Introduction to Microelectronics	ECSE 334	(5 cr, P - EDEC 206, ECSE	Digital Systems Design	ECSE 323
ECSE 427 Operating Systems (3 cr, P - ECSE 322 or COMP 273) ECSE 426 Microprocessor Systems ECSE 474 (3 cr, P - ECSE 206) (1 cr, P - EDSE 211 & 42 depart from EE, CE and Seventh (Fall) Semester 16 credits ECSE 475 Design Project 2 (2 cr, P - ECSE 474) MIME 310 Engineering Economy (3 cr) XXXX xxxt 12 Technical Complementary 2 (3 cr)	SE 322 & ECSE	(3 cr, P - ECSE 322	Computer Org. & Architecture	ECSE 425		Electromagnetic Fields & Waves	ECSE 353
ECSE 474 Design Project 1 (1 cr, P - EDEC 211 & 42 depart from EE, CE and ECSE 4xx t1 Technical Complementary 1 Seventh (Fall) Semester 16 credits ECSE 475 Design Project 2 (2 cr, P - ECSE 474) MIME 310 Engineering Economy (3 cr) XXXX xxxt 12 Technical Complementary 2 (3 cr)	SE 323 & EDEC	(3 cr, P - ECSE 323	Microprocessor Systems	ECSE 426	(3 cr, P - ECSE 322 or COMP	Operating Systems	ECSE 427
ECSE 4xx t1 Technical Complementary 1 (3 cr) Seventh (Fall) Semester 16 credits ECSE 475 Design Project 2 (2 cr, P - ECSE 474) MIME 310 Engineering Economy (3 cr) XXXX xxxt 12 Technical Complementary 2 (3 cr)	partmental credits	(1 cr, P - EDEC 206) 211 & 42 department from EE, CE and CS	Design Project 1	ECSE 474	,		
ECSE 475Design Project 2(2 cr, P - ECSE 474)MIME 310Engineering Economy(3 cr)XXXX xxx t2Technical Complementary 2(3 cr)	,		Technical Complementary 1	ECSE 4xx t1			
MIME 310Engineering Economy(3 cr)XXXX xxx t2Technical Complementary 2(3 cr)							
XXXX xxx t2 Technical Complementary 2 (3 cr)					(2 cr, P - ECSE 474)		
XXXX xxx t3 Lechnical Complementary 3 (3 or)							
ECSE 4xx Lab Complementary (2 cr or 3 cr)							
XXXX xxx g2 General Complementary 2 (3 cr)					(3 cr)	General Complementary 2	XXXX xxx g2

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.

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

The Basic Science Complementary course must be selected from the attached list (see last page).

This sample curriculum is for students who wish to complete their degree requirements in 7 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 June 2008

TECHNICAL AND LAB COMPLEMENTARY COURSES - COMPUTER ENGINEERING PROGRAM Technical Complementaries (3 courses) 9 credits

Students following the Computer Engineering program must take 3 courses (9 credits) from the following lists. One course must be chosen from List A, and 2 courses must be chosen 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.

Compute	r Engineering Technical Complementarie	es - LIST A:
Course	Course Title	Pro-Roquisitos

Course	Course Title	Pre-Requisites and Co-Requisites
ECSE 424	Human-Computer Interaction	(3 cr, P - ECSE 322)
ECSE 428	Software Engineering Practice	(3 cr, P - ECSE 321 or COMP 335)
ECSE 431	Introduction to VLSI CAD.	(3 cr, P - ECSE 323 & ECSE 330)

Computer Engineering Technical Complementaries - LIST B:

Course	Course Title	Pre-Requisites and Co-Requisites
ECSE 404	Control Systems	(3 cr, C - ECSE 304 or ECSE 306)
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 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 429	Software Validation	(3 cr, P - ECSE 321)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 322, ECSE 323 & ECSE 304 or ECSE 306)
ECSE 443	Numerical Methods in Elect. Eng.	(3 cr, P - ECSE 221, ECSE 330 & ECSE 351 or ECSE 353)
ECSE 450	Electromagnetic Compatability	(3 cr, P - ECSE 221, ECSE 334 & ECSE 352 or ECSE 353)
ECSE 526	Artificial Intelligence	(3 cr, P - ECSE 322)
or COMP 424	4 Topics: Atrificial Intelligence 1	(3 cr, P - COMP 206, COMP 251 & COMP 302)
ECSE 530	Logic Synthesis	(3 cr, P - ECSE 323)
ECSE 532	Computer Graphics	(3 cr, P - ECSE 322)
ECSE 548	Introduction to VLSI Systems	(3 cr, P - ECSE 323 & ECSE 334)

Laboratory Complementary (one course) 2 credits

Students following the regular Computer Engineering program must take one course (2 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 434	Microelectronics Laboratory	(2 cr, P - EDEC 206, ECSE 334)
ECSE 436	Signal Processing Hardware	(3 cr, P - ECSE 322, ECSE 323 & ECSE 304 or ECSE 306)
ECSE 487	Computer Architecture Laboratory	(2 cr, P - EDEC 206; C- ECSE 425)
ECSE 489	Telecommunication Network Laboratory	(2 cr, P - EDEC 206; C - ECSE 414 or ECSE 528 or COMP 535)
ECSE 490 ECSE 491 ECSE 493	Digital Signal Processing Lab Communications Systems Lab Control & Robotics Lab	(2 cr, P - ECSE 291 & EDEC 206; C- ECSE 412 or ECSE 512) (2 cr, P - EDEC 206 & ECSE 291;C- ECSE 411 or ECSE 511) (2 cr, P - EDEC 206 & ECSE 291;C- ECSE 404 or ECSE 501)

BASIC SCIENCE COMPLEMENTARY COURSES - COMPUTER ENGINEERING PROGRAM

Students following the Computer Engineering Program (CEGEP entry) must take 3 credits (1 course) from the following list:

PHYS 214 Introductory Astrophysics

(3) (Fall) (Prerequisite: Cegep physics or PHYS 102 or PHYS 142.)
(Restriction: Not open to students who have taken or are taking PHYS 205 or PHYS 206.) An introduction to astrophysics with emphasis placed on methods of observation and current models. Stellar radiation and detectors, quasars, black holes. Galaxies, large scale structure of the universe, cosmology.

PHYS 225 Musical Acoustics.

(3) (Winter) (3 hours lectures) (Prerequisites: CEGEP physics or both MATH 112 and PHYS 224) (Designed for students in music who have interests in sound recording and reproduction and also suitable for students in science with an interest in music) Physical acoustics with applications to music. Resonators and radiators, acoustic impedance. Acoustic properties of strings, bars, membranes, pipes and horns. Application to selected musical instruments. Direction characteristics of sound sources. Room acoustics.

PHYS 230 Dynamics of Simple Systems.

(3) (Fall) (3 hours lectures) (Prerequisite: CEGEP physics.)
(Corequisite: MATH 222) (Restriction: Not open to students taking or having passed PHYS 251) Translational motion under Newton's laws; forces, momentum, work/energy theorem.
Special relativity; Lorentz transforms, relativistic mechanics, mass/energy equivalence. Topics in rotational dynamics.
Noninertial frames.

PHYS 260 Modern Physics and Relativity.

(3) (Fall) (3 hours lectures) (Corequisite: MATH 222)
 History of special relativity; Lorentz transformations:
 kinematics and dynamics; transformation of electric and magnetic forces; introduction to topics in modern physics.

CHEM 201 Modern Inorganic Chemistry 1.

(3) (Fall) (3 lectures) (Prerequisites: CHEM 110 and CHEM 120 or equivalent.) (Restriction: Not open to Honours or Majors in chemistry) (Restriction: Not open to students who have taken or plan to take CHEM 281) Systematic survey of the chemistry of the main group elements and their compounds. Basic concepts of electronic structure, bonding and structure will be developed and applied to the understanding of common materials. Emphasis on elements such as oxygen, nitrogen, silicon and others in order to understand their role in our everyday lives.

CHEM 203 Survey of Physical Chemistry.

(3) (Fall) (3 lectures) (Prerequisites: CHEM

110 and CHEM 120 or equivalent.) (Restriction: Intended for students in biological science programs requiring only one course in physical chemistry) (Restriction: Not open to students who have taken or are taking CHEM 204 or CHEM 213) A survey of the principles and methods of physical chemistry with emphasis on the use of biological examples. Topics will include thermodynamics, transport properties, kinetics, molecular structure and interactions, and spectroscopy.

CHEM 212 Introductory Organic Chemistry 1.

(4) (Fall and Winter and Summer) (3 lectures and a laboratory) (Prerequisite: CHEM 110 or equivalent.)
(Corequisite: CHEM 120 or equivalent.) (Restriction: Not open to students who are taking or have taken CHEM 211)
(Each lab section is limited enrolment) (Note: Some CEGEP programs provide equivalency for this course. For more information, please see the Department of Chemistry's Webpage (http://www.chemistry.mcgill.ca/advising/outside/equivalencies.htm).
A survey of reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis, and stereochemistry.

BIOL 200 Molecular Biology.

(3) (Fall) (3 hours lecture, 1 hour optional tutorial) (Prerequisite: BIOL 112 or equivalent.) (Corequisite: CHEM 212 or equivalent) The physical and chemical properties of the cell and its components in relation to their structure and function. Topics include: protein structure, enzymes and enzyme kinetics; nucleic acid replication, transcription and translation; the genetic code, mutation, recombination, and regulation of gene expression.

BIOL 215 Introduction to Ecology and Evolution.

(3) (Fall) (3 hours lecture) (Prerequisite: BIOL 111) (Restrictions: Not open to students who have taken BIOL 208, BIOL 304 or BIOL 305. Not open to students who have taken ENVR 200 and/or ENVR 202.) An introduction to the fundamental processes of ecology and evolution that bear on the nature and diversity of organisms and the processes that govern their assembly into ecological communities and their roles in ecosystem function.

EPSC 203 Structural Geology 1.

(3) (Winter) (2 hours lectures, 3 hours laboratory) Primary igneous and sedimentary structures, attitudes of planes and lines, stress and strain, fracturing of rocks, faulting, homogeneous strain, description and classification of folds, foliation and lineation, orthographic and stereographic projections.

EPSC 210 Introductory Mineralogy.

 (3) (Fall) (2 hours lectures, 3 hours laboratory) Crystal chemistry and identification of the principal rock-forming and ore minerals. Elementary crystallography.
 Optional 2-day field trip.

ESYS 200 Earth System Processes.

(3) (Winter) (3 hours lecture) Complex interactions among the atmosphere biosphere, geosphere and hydrosphere. Biological, chemical and physical processes within and between each "sphere" that extend over spatial scales ranging from microns to the size of planetary orbits and that span time scales from fractions of a second to billions of years.

ATOC 215 Oceans, Weather and Climate.

(3) (Winter) (3 hours lectures) (Prerequisite: CEGEP Physics or permission of the instructor) Laws of motion, geostrophic wind, gradient wind. General circulation of the atmosphere and oceans, local circulation features. Air-sea interaction, including hurricanes and sea-ice formation, extra-tropical weather systems and fronts, role of the atmosphere and oceans in climate.