

Computer Engineering Curriculum - Fall 2014

CEGEP Entry

| 1st Semester (Fall) | | 15 credits | Prerequisites/Co-requisites |
|------------------------------|---|------------|--|
| CIVE 281 | Analytical Mechanics | 3 | C - MATH 262, MATH 263 |
| COMP 202 | Foundations of Programming | 3 | P - A CEGEP-level mathematics course |
| MATH 262 | Intermediate Calculus | 3 | P - MATH 141, MATH 133 |
| MATH 263 | Ordinary Differential Equations for Engineers | 3 | C - MATH 262 |
| CS | Complementary Studies Group B (HSSML) | 3 | - |
| 2nd Semester (Winter) | | 16 credits | Prerequisites/Co-requisites |
| COMP 250 | Introduction to Computer Science | 3 | P - MATH 140, MATH 141 |
| ECSE 200 | Electric Circuits 1 | 3 | P - PHYS 142 or CEGEP equivalent / C - MATH 263 |
| ECSE 221 | Introduction to Computer Engineering | 3 | P - COMP 202 |
| FACC 100 | Introduction to the Engineering Profession | 1 | - |
| MATH 264 | Advanced Calculus for Engineers | 3 | P - MATH 262 / C - MATH 263 |
| MATH 270 | Applied Linear Algebra | 3 | P - MATH 263 |
| 3rd Semester (Fall) | | 17 credits | Prerequisites/Co-requisites |
| CCOM 206 | Communication in Engineering | 3 | - |
| 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 291 | Electrical Measurements Laboratory | 2 | C - ECSE 210 |
| ECSE 322 | Computer Engineering | 3 | P - ECSE 200 or MECH 383, ECSE 221 |
| CS | Complementary Studies Group A (Impact) | 3 | - |
| 4th Semester (Winter) | | 17 credits | Prerequisites/Co-requisites |
| ECSE 306 | Fundamentals of Signals and Systems | 3 | P - ECSE 210, MATH 270 |
| ECSE 321 | Introduction to Software Engineering | 3 | P - COMP 202 or COMP 208 |
| 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 |
| MATH 363 | Discrete Mathematics | 3 | P - MATH 263, MATH 264 |
| 5th Semester (Fall) | | 15 credits | Prerequisites/Co-requisites |
| COMP 251 | Data Structures and Algorithms | 3 | P - COMP 250 |
| ECSE 305 | Probability and Random Signals 1 | 3 | P - ECSE 303 or ECSE 306 |
| ECSE 353 | Electromagnetic Fields and Waves | 3 | P - ECSE 210, MATH 264 |
| ECSE 427 | Operating Systems | 3 | P - ECSE 322 or COMP 273 |
| Science | Natural Science Complementary | 3 | - |
| 6th Semester (Winter) | | 18 credits | Prerequisites/Co-requisites |
| ECSE 334 | Introduction to Microelectronics | 3 | P - ECSE 291, ECSE 303 or ECSE 306, ECSE 330 |
| ECSE 425 | Computer Organization and Architecture | 3 | P - ECSE 322, ECSE 323 |
| 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 |
| FACC 300 | Engineering Economy | 3 | - |
| ECSE xxx | Technical Complementary | 3 | - |
| 7th Semester (Fall) | | 15 credits | Prerequisites/Co-requisites |
| ECSE 414 | Introduction to Telecommunication Networks | 3 | P - ECSE 322, ECSE 304 or ECSE 306 |
| ECSE 457 | ECSE Design Project 2 | 3 | P - ECSE 456 |
| FACC 400 | Engineering Professional Practice | 1 | P - FACC 100, 60 program credits |
| ECSE xxx | Lab Complementary | 2 | - |
| ECSE xxx | Technical Complementary | 3 | - |
| ECSE xxx | Technical Complementary | 3 | - |

Technical, Lab and Natural Science Complementary course 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 under "Complementary Studies" in the Faculty of Engineering Undergraduate section of the *Programs, Courses and University Regulations* publication (www.mcgill.ca/study) (see the Academic Programs section).

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

Technical Complementaries

Note: 500-level courses are restricted to students with a minimum CGPA of 3.0 and B+ or better in prerequisite courses.

9 credits from the following:

| | | Credits | Prerequisites/Co-requisites |
|----------|---|---------|---|
| COMP 424 | Artificial Intelligence | 3 | P - COMP 206/ECSE 321, COMP 251 |
| ECSE 404 | Control Systems | 3 | C - ECSE 304 or ECSE 306 |
| ECSE 411 | Communications Systems 1 | 3 | P - ECSE 305, ECSE 304 / ECSE 306 |
| ECSE 412 | Discrete Time Signal Processing | 3 | P - ECSE 304 or ECSE 306 |
| ECSE 420 | Parallel Computing | 3 | P - ECSE 427 |
| ECSE 421 | Embedded Systems | 3 | P - ECSE 322, ECSE 323 |
| ECSE 422 | Fault Tolerant Computing | 3 | P - ECSE 322 |
| ECSE 424 | Human-Computer Interaction | 3 | P - ECSE 322 |
| ECSE 428 | Software Engineering Practice | 3 | P - ECSE 321 or COMP 335 |
| ECSE 429 | Software Validation | 3 | P - ECSE 321 or COMP 303 |
| ECSE 431 | Introduction to VLSI CAD | 3 | P - ECSE 323, ECSE 330 |
| ECSE 436 | Signal Processing Hardware | 3 | P - ECSE 322, ECSE 323, ECSE 304/306 |
| ECSE 443 | Introduction to Numerical Methods of Electrical Engineering | 3 | P - ECSE 221, ECSE 330, ECSE 351/ECSE 353 |
| ECSE 450 | Electromagnetic Compatibility | 3 | P - ECSE 221, ECSE 334, ECSE 352/ECSE 353 |
| ECSE 530 | Logic Synthesis | 3 | P - ECSE 323 |
| ECSE 532 | Computer Graphics | 3 | P - ECSE 322 |
| ECSE 537 | Advanced Digital Integrated Circuits | 3 | P - ECSE 323, ECSE 334 |
| ECSE 548 | Introduction to VLSI Systems | 3 | P - ECSE 323, ECSE 334 |

Laboratory Complementaries

2-3 credits from the following:

| | | Credits | Prerequisites/Co-requisites |
|----------|--------------------------------------|---------|---|
| ECSE 434 | Microelectronics Laboratory | 2 | P - CCOM 206 or EDEC 206, ECSE 334 |
| ECSE 436 | Signal Processing Hardware | 3 | P - ECSE 322, ECSE 323, ECSE 304/ECSE 306 |
| ECSE 487 | Computer Architecture Laboratory | 2 | P - CCOM 206 or EDEC 206 / C - ECSE 425 |
| ECSE 489 | Telecommunication Network Laboratory | 2 | P - CCOM 206 or EDEC 206 / C - ECSE 414 or ECSE 528 |
| ECSE 490 | Digital Signal Processing Laboratory | 2 | P - CCOM 206 or EDEC 206, ECSE 291 / C - ECSE 412 or ECSE 411 |
| ECSE 491 | Communication Systems Laboratory | 2 | P - CCOM 206 or EDEC 206, ECSE 291 / C - ECSE 411 or ECSE 412 |
| ECSE 493 | Control and Robotics Laboratory | 2 | P - CCOM 206 or EDEC 206, ECSE 291 / C - ECSE 404 or ECSE 504 |

Natural Science Complementary Courses - Computer Engineering

Students from CEGEP are required to complete one 3-credit course at the 200-level or higher, chosen from the following science departments, approved by the Undergraduate Programs Office in the Department of Electrical and Computer Engineering:

Atmospheric and Oceanic Sciences (ATOC)
 Biology (BIOL)
 Chemistry (CHEM)
 Earth and Planetary Sciences (EPSC)
 Earth System Science (ESYS)
 Physics (PHYS)

Last update: May 2, 2014

For the official program listing, see the *Programs, Courses and University Regulations* publication (www.mcgill.ca/study).