<table>
<thead>
<tr>
<th>First Semester (Fall 2016)</th>
<th>Total credits: 134</th>
<th>Second Semester (Winter 2017)</th>
<th>18 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXX xxx</td>
<td>Humanities &amp; Social Sciences 1* (3 cr)</td>
<td>MATH 140</td>
<td>Calculus 1 (3 cr)</td>
</tr>
<tr>
<td>CIVE 281</td>
<td>Analytical Mechanics (3 cr, C - MATH 263)</td>
<td>ECSE 200</td>
<td>Electric Circuits 1 (3 cr, P - PHYS 142 or CEGEP Equivalent, C - MATH 263)</td>
</tr>
<tr>
<td>ECSE 307</td>
<td>Linear Systems &amp; Control (4 cr, P - ECSE 200, ECSE 210)</td>
<td>ECSE 324</td>
<td>Computer Organization (4 cr, P - ECSE 200 &amp; ECSE 222)</td>
</tr>
<tr>
<td>ECSE 456</td>
<td>ECSE Design Project 1 (3 cr, P - CIVE 281 &amp; ECSE 211 &amp; ECSE 233)</td>
<td>ECSE 4xx 41</td>
<td>Technical Complementary 1 (4 cr)</td>
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<tr>
<td><strong>For instructions on selecting valid “Humanities and Social Sciences” courses, see <a href="http://www.mcgill.ca/ece">www.mcgill.ca/ece</a>, then: Programs and Courses &gt; Undergraduate &gt; Complementary Studies.</strong></td>
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</tbody>
</table>

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. (Exception: A student who fails a course with a grade of D may take an ECSE course that has it as a prerequisite, provided that the failed course is retaken at the same time. Students thinking of doing this should meet with a Departmental advisor).

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: Programs and Courses > Undergraduate > Complementary Studies.

** For instructions on selecting valid “Impact of Technology on Society” courses, see www.mcgill.ca/ece, then: Programs and Courses > Undergraduate > 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 2016-02-01
ELECTRICAL ENGINEERING

Four-credit Technical Complementaries (2 courses) 8 credits

Two courses from this list:

- ECSE 335 Microelectronics (4 cr, P - ECSE 331)
- ECSE 403 Control Systems (4 cr, P - ECSE 307)
- ECSE 408 Communication Systems (4 cr, P - ECSE 205 & ECSE 308)
- ECSE 416 Telecommunication Networks (4 cr, P - COMP 250, ECSE 225 & ECSE 308 or ECSE 316)
- ECSE 433 Physical Basis of Transistor Devices (4 cr, P - MIME 262, ECSE 331, ECSE 261)
- ECSE 444 Microprocessors (4 cr, P - ECSE 324)
- ECSE 470 Electromechanical Systems (4 cr, P - ECSE 362)

Remaining Technical Complementaries (5 courses) 15 credits

The remaining five technical complementary courses can be chosen from the previous list or the following:

- ECSE 310 Thermodynamics of Computing (3 cr, P - ECSE 200, ECSE 205 & ECSE 222)
- ECSE 325 Digital Systems (3 cr, P - ECSE 324)
- ECSE 405 Antennas (3 cr, P - ECSE 303 & ECSE 362)
- 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 415 Introduction to Computer Vision (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 332)
- ECSE 422 Fault Tolerant Computing (3 cr, P - ECSE 322)
- ECSE 423 Fundamentals of Photonics (3 cr, P - ECSE 322)
- ECSE 424 Human-Computer Interaction (3 cr, P - ECSE 322)
- ECSE 425 Computer Architecture (3 cr, P - ECSE 324 or COMP 273)
- ECSE 427 Operating Systems (3 cr, P - ECSE 324 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 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 363)
- ECSE 451 EM Transmission & Radiation (3 cr, P - ECSE 352)
- ECSE 460 Appareillage électrique (3 cr, P - ECSE 362)
- ECSE 461 Matériaux de l'électrotechnique (3 cr, P - ECSE 361)
- ECSE 464 Power Systems Analysis (3 cr, P - ECSE 334 & ECSE 361)
- ECSE 466 Réseaux de distribution (3 cr, P - ECSE 361)
- ECSE 467 Comportement des réseaux électriques (3 cr, P - ECSE 482 or ECSE 464)
- ECSE 468 Electricité Industrielle (3 cr, P - ECSE 361)
- ECSE 469 Protection des réseaux électriques (3 cr, P - ECSE 464)
- PHYS 434 Optics (3 cr, P - PHYS 342 or PHYS 352, or permission of the instructor)
- PHYS 446 Majors quantum physics (3 cr, P - PHYS 230 & PHYS 232, or PHYS 251)

It is recommended that the technical complementary courses be chosen according to a specialization area. Suggested courses appropriate to the primary specialization areas are given in the following lists.

**Intelligent systems: control and automation**

- ECSE 325 Digital Systems (3)
- ECSE 403 Control Systems (4)
- ECSE 415 Intro to Computer Vision (3)
- ECSE 444 Microprocessor Systems (4)
- ECSE 421 Embedded Systems (3)
- ECSE 422 Fault-Tolerant Computing (3)
- ECSE 424 Human-Computer Interaction (3)
- ECSE 425 Computer Architecture (3)
- ECSE 427 Operating Systems (3)
- ECSE 436 Signal Processing Hardware (3)

**Telecommunications**

- ECSE 408 Communication Systems 1 (4)
- ECSE 413 Communication Systems 2 (3)
- ECSE 416 Intro. to Telecommunication Networks (4)
- ECSE 405 Antennas (3)
- ECSE 412 Discrete Time Signal Processing (3)
- ECSE 423 Fundamentals of Photonics (3)
- ECSE 436 Signal Processing Hardware (3)
- ECSE 450 Electromagnetic Compatibility (3)

**Integrated circuits, electronics and photonics**

- ECSE 335 Introduction to Microelectronics (4)
- ECSE 430 Photonic Devices and Systems (3)
- ECSE 433 Physical Basis of Transistor Devices (4)
- ECSE 325 Digital Systems (3)
- ECSE 423 Fundamentals of Photonics (3)
- ECSE 431 Introduction to VLSI CAD (3)
- ECSE 435 Mixed Signal Test Techniques (3)
- ECSE 450 Electromagnetic Compatibility (3)
- ECSE 460 Appareillage électrique (3)
- ECSE 463 Matériaux de l’électrotechnique (3)
- ECSE 464 Power System Analysis (3)
- ECSE 465 Power Electronic Systems (3)
- ECSE 466 Réseaux de distribution (3)
- ECSE 467 Comportement des réseaux électrique (3)

**Power engineering**

- ECSE 403 Control Systems (4)
- ECSE 470 Electromechanical Energy Conversion (4)
- ECSE 460 Appareillage électrique (3)
- ECSE 463 Matériaux de l’électrotechnique (3)
- ECSE 464 Power System Analysis (3)
- ECSE 465 Power Electronic Systems (3)
- ECSE 466 Réseaux de distribution (3)
- ECSE 467 Comportement des réseaux électrique (3)
- ECSE 468 Electricité Industrielle (3)