### 1st YEAR (30 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Session</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM1311</td>
<td>Principles of Chemistry</td>
<td>Fall</td>
<td>4U or OAC chemistry or equivalent</td>
</tr>
<tr>
<td>GNG1105</td>
<td>Engineering Mechanics</td>
<td>Fall</td>
<td>Physics 4U, advanced functions and Introductory Calculus 4U or equivalent</td>
</tr>
<tr>
<td>GNG1106</td>
<td>Fundamentals of Engineering Computation</td>
<td>Fall</td>
<td>One of MAT1339, Ontario 4U Calculus and Vectors (MCV4U) or an equivalent</td>
</tr>
<tr>
<td>MAT1320</td>
<td>Calculus I</td>
<td>Fall</td>
<td>MAT1339 or Ontario 4U Calculus and Vectors (MCV4U), or an equivalent</td>
</tr>
<tr>
<td>MAT1341</td>
<td>Introduction to Linear Algebra</td>
<td>Fall</td>
<td>MAT1320</td>
</tr>
<tr>
<td>ECO1192</td>
<td>Engineering Economics</td>
<td>Winter</td>
<td>OAC or 4U Physics, MAT1320</td>
</tr>
<tr>
<td>ITI1100</td>
<td>Digital Systems I</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>MAT1322</td>
<td>Calculus II</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>MAT1348</td>
<td>Discrete Mathematics for Computing</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>PHY1124</td>
<td>Fundamentals of Physics for Engineers</td>
<td>Winter</td>
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</tbody>
</table>

### 2nd YEAR (36 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Session</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEG2136</td>
<td>Computer Architecture I</td>
<td>Fall</td>
<td>ITI1100, MAT1341, MAT1322</td>
</tr>
<tr>
<td>ELG2138</td>
<td>Circuit Theory I</td>
<td>Fall</td>
<td>(MAT1322 or MAT1325 or MAT1332), (MAT1341 or CEGEP linear algebra)</td>
</tr>
<tr>
<td>ENG1112</td>
<td>Technical Report Writing</td>
<td>Fall</td>
<td>MAT1341, (MAT1322 or MAT1325 or MAT1332)</td>
</tr>
<tr>
<td>MAT2322</td>
<td>Calculus III for Engineers</td>
<td>Fall</td>
<td></td>
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<tr>
<td>MAT2384</td>
<td>Ordinary Differential Equations and Numerical Methods</td>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>PHI2394</td>
<td>Scientific Thought and Social Values</td>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>HIS2129</td>
<td>Technology, Society and Environment since 1800</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>ELG2111</td>
<td>Professional Practice in Information Technology and Engineering</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>ELG2136</td>
<td>Electronics I</td>
<td>Winter</td>
<td>ELG2138, MAT2384</td>
</tr>
<tr>
<td>ELG2137</td>
<td>Circuit Theory II</td>
<td>Winter</td>
<td>ELG2138, MAT2384</td>
</tr>
<tr>
<td>PHY2323</td>
<td>Electricity and Magnetism</td>
<td>Winter</td>
<td>(MAT2121 or MAT2122 or MAT2322), (PHY1124 or {PHY1121, PHY1122} or {PHY1321, PHY1322} or {PHY1331, PHY1332})</td>
</tr>
</tbody>
</table>

### 3rd YEAR (30 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Session</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELG3106</td>
<td>Electromagnetic Engineering</td>
<td>Fall</td>
<td>MAT2322, MAT2384, PHY2323</td>
</tr>
<tr>
<td>ELG3125</td>
<td>Signal and System Analysis</td>
<td>Fall</td>
<td>ELG2138</td>
</tr>
<tr>
<td>ELG3136</td>
<td>Electronics II</td>
<td>Fall</td>
<td>ELG2136</td>
</tr>
<tr>
<td>ELG3316</td>
<td>Electric Machines and Power Systems</td>
<td>Fall</td>
<td>ELG2138, ELG2136</td>
</tr>
<tr>
<td>ELG3126</td>
<td>Random Signals and Systems</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>ELG3155</td>
<td>Introduction to Control Systems</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>ELG3175</td>
<td>Introduction to Communication Systems</td>
<td>Winter</td>
<td></td>
</tr>
<tr>
<td>CEG3185</td>
<td>Introduction to Data Communications and Networking</td>
<td>Winter</td>
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<tr>
<td></td>
<td>Complementary Elective</td>
<td>Winter</td>
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</tbody>
</table>

### 2015-2016 Course Sequence
BASc in Electrical Engineering
**4th YEAR * – (30 credits)**

*Note: 4th year students are required to pick one of the 5 options: Communications [T], Systems [S], Electronics [E], Microwave & Photonic [M] or Power and Sustainable Energy [P].

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Session</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEG4158 [S]</td>
<td>Computer Control in Robotics</td>
<td>Fall</td>
<td>CEG2136, ELG3155</td>
</tr>
<tr>
<td>ELG4117 [E], [M]</td>
<td>Optoelectronics and Optical Components</td>
<td>Fall</td>
<td>ELG3106, ELG3136</td>
</tr>
<tr>
<td>ELG4125 [P]</td>
<td>Electric Power Transmission, Distribution &amp; Utilization</td>
<td>Fall</td>
<td>ELG2137, ELG3316</td>
</tr>
<tr>
<td>ELG4139 [T], [E], [M], [P]</td>
<td>Electronics III</td>
<td>Fall</td>
<td>ELG3136, ELG3155</td>
</tr>
<tr>
<td>ELG4156 [T], [S]</td>
<td>Linear Systems</td>
<td>Fall</td>
<td>ELG3125, ELG3155</td>
</tr>
<tr>
<td>ELG4176 [T], [E]</td>
<td>Communication Systems</td>
<td>Fall</td>
<td>ELG3175, ELG3126</td>
</tr>
<tr>
<td>ELG4179 [T], [M], [P]</td>
<td>Wireless Communication Fundamentals</td>
<td>Fall</td>
<td>ELG3175</td>
</tr>
<tr>
<td>ELG4912 [All options]</td>
<td>Electrical Engineering Design Project: Part I</td>
<td>Fall</td>
<td>ELG3106, ELG3136, ELG3175, ELG3155, PHY1122 or PHY1124 or PHY1322, (MAT1322 or MAT1325 or MAT1332)</td>
</tr>
<tr>
<td>PHY2311 [M]</td>
<td>Waves and Optics</td>
<td>Fall</td>
<td>(MAT1341, (MAT1322 or MAT1325 or MAT1341, (MAT1322 or MAT1325 or MAT1332), (PHY1121 or PHY1321 or PHY1331 or PHY1124)</td>
</tr>
<tr>
<td>PHY2333 [S]</td>
<td>Mechanics</td>
<td>Fall</td>
<td>ELG3106, ELG3136</td>
</tr>
</tbody>
</table>

Technical elective ** [S], [E], [P] | Fall | ELG3106, ELG3136, ELG3175, ELG3155

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Session</th>
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</thead>
<tbody>
<tr>
<td>ELG4115 [E], [M]</td>
<td>Microwave Circuits</td>
<td>Winter</td>
<td>ELG3106, ELG3136</td>
</tr>
<tr>
<td>ELG4118 [T], [M]</td>
<td>Wave Propagation and Antennas</td>
<td>Winter</td>
<td>ELG3106</td>
</tr>
<tr>
<td>ELG4126 [P]</td>
<td>Sustainable Electrical Power Systems</td>
<td>Winter</td>
<td>ELG2137, ELG3316, ELG3136, ELG3155</td>
</tr>
<tr>
<td>ELG4137 [S], [E]</td>
<td>Principles and Applications of VLSI Design</td>
<td>Winter</td>
<td>ELG2136</td>
</tr>
<tr>
<td>ELG4157 [S], [P]</td>
<td>Modern Control Engineering</td>
<td>Winter</td>
<td>ELG3155</td>
</tr>
<tr>
<td>ELG4159 [S], [P]</td>
<td>Integrated Control Systems</td>
<td>Winter</td>
<td>ELG3125, ELG3155, ELG3316</td>
</tr>
<tr>
<td>ELG4177 [T], [S], [E]</td>
<td>Digital Signal Processing</td>
<td>Winter</td>
<td>ELG3125</td>
</tr>
<tr>
<td>ELG4178 [M]</td>
<td>Optical Communications and Networking</td>
<td>Winter</td>
<td>PHY3320 or ELG3106</td>
</tr>
<tr>
<td>ELG4913 [All options]</td>
<td>Electrical Engineering Design Project: Part II</td>
<td>Winter</td>
<td>ELG4912</td>
</tr>
<tr>
<td>EVS1101 [P]</td>
<td>Introduction to Environmental Science</td>
<td>Winter</td>
<td>Advanced Functions and Introductory Calculus 4U or Calculus and Vectors 4U or MAT1319 or MAT1339 and two of the 4U Science or Mathematics courses</td>
</tr>
<tr>
<td>PHY2361 [T], [E]</td>
<td>Modern Physics</td>
<td>Winter</td>
<td>MAT1341, (MAT1322 or MAT1325 or MAT1332), (PHY1124 or (PHY1121, PHY1122) or (PHY1321, PHY1322) or (PHY1331, PHY1322)</td>
</tr>
</tbody>
</table>

Technical elective *** [T], [M] | Winter | ELG4176, ELG4179

**Technical electives include the following courses: CEG4158, CEG4188, CEG4316, ELG4117, ELG4121, ELG4125, ELG4139, ELG4156, ELG4176, ELG4179.**

***Technical electives include the following courses: CEG4187, CEG4190, CEG4396, ELG4115, ELG4118, ELG4122, ELG4126, ELG4137, ELG4157, ELG4159, ELG4177, ELG4178.**

Additionally, for the [S], [E], [M] options: CEG4186.