2+2 Program

Introduction

Students complete the first two years of an engineering program in Canisius’ Liberal Arts environment, taking advantage of small class sizes and individual attention before transferring to a larger institution to complete their studies. Coursework at Canisius is just as rigorous and demanding as at Engineering institutions, so students typically report little difficulty adapting to the transfer. Early consultation with an advisor is required to map out a curriculum, as the choice of desired engineering major will alter the course schedule somewhat. Mathematical preparation is key to timely completion of this program, again requiring close attention to course scheduling. Outside the classroom, our students work with modern fabrication techniques with our 3-D printer and Computer Numerical Control router. The students can build standard parts or prototype new pieces.

Dual Majors

Dual majors in the Engineering 2+2 program would be subject to the regulations of the engineering institution.

Curriculum

Major Courses

This varies depending on the engineering major chosen, but typically includes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 111</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MAT 112</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MAT 211</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MAT 222</td>
<td>Differential Equations</td>
<td>4</td>
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<tr>
<td>CHM 111</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
<td>4</td>
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<tr>
<td>CHM 112</td>
<td>General Chemistry II and General Chemistry II Laboratory</td>
<td>4</td>
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<tr>
<td>or PHY 225</td>
<td>General Physics for Physical Science Majors III</td>
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<tr>
<td>CSC 111</td>
<td>Introduction to Programming and Introduction to Programming Laboratory</td>
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<tr>
<td>PHY 104</td>
<td>Seminar for Physics and Pre-engineering Majors</td>
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<td>PHY 223</td>
<td>General Physics for Physical Science Majors I and General Physics for Physical Science Majors I Laboratory</td>
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<tr>
<td>PHY 224</td>
<td>General Physics for Physical Science Majors II and General Physics for Physical Science Majors I Laboratory</td>
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<tr>
<td>PHY 225</td>
<td>General Physics for Physical Science Majors III and General Physics for Physical Science Majors III Laboratory</td>
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</tr>
<tr>
<td>or CHM 112</td>
<td>General Chemistry II</td>
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<tr>
<td>PHY 226</td>
<td>Basic Electronics and Basic Electronics Laboratory</td>
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<tr>
<td>EGR 111</td>
<td>Introduction to Engineering Design</td>
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<tr>
<td>EGR 207</td>
<td>Engineering Statics</td>
<td>3</td>
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<td>EGR 208</td>
<td>Engineering Dynamics</td>
<td>3</td>
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<tr>
<td>EGR 214</td>
<td>Strength of Materials</td>
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<tr>
<td>EGR 211</td>
<td>Engineering Thermodynamics</td>
<td>3</td>
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</tbody>
</table>

Total Credits: 58

Additional Course Recommendations

Linear Algebra (MAT 219), additional computer science (CSC 111) and/or Organic Chemistry (CHM 227, CHM 228), depending on choice of engineering major.

Roadmap

Recommended Schedule: 2+2 program

Freshman

Fall
- EGR 111
- MAT 112
- MAT 111
- PHY 104
- PHY 224 & 224L

Spring
- MAT 112
- PHY 104
- PHY 224 & 224L
- EGR 207
- EGR 211

Sophomore

Fall
- MAT 211
- MAT 222
- PHY 104
- PHY 225 & 225L
- EGR 207
- EGR 211

Spring
- MAT 222 & 222L
- PHY 226 & 226L
- EGR 208
- EGR 214

Junior

Fall
- Completed at an Engineering Institution

Spring
- Completed at an Engineering Institution

Senior

Fall
- Completed at an Engineering Institution

Spring
- Completed at an Engineering Institution

Additional Course Considerations

Additional courses in some engineering majors may require cross-registration at University at Buffalo (UB).