Bachelor of Science in Applied Science (Systems Science & Engineering)

This program provides the student with the opportunity to prepare their academic career with maximum flexibility but also with enough organization to ensure substantive, consistent training in systems science methodology and outlook. This program is recommended if students wish to pursue a program that does not follow conventional lines. It is an especially advantageous degree for a double major in association with mathematics, physics, economics or another engineering discipline. The program can be planned to provide a desirable background for graduate work in biological, medical or management fields. This applied science degree is not accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

The degree requirements include the residency and general requirements of the university and the McKelvey School of Engineering as well as the following:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities and social sciences electives</td>
<td>18</td>
</tr>
<tr>
<td>Mathematics, science and engineering electives</td>
<td>24</td>
</tr>
<tr>
<td>Required courses: ESE 105, ESE 230, ESE 351, ESE 4031 or ESE 415, and ESE 441</td>
<td>17</td>
</tr>
<tr>
<td>Computer Science requirement (CSE 131)</td>
<td>3</td>
</tr>
<tr>
<td>Systems science and engineering electives (ESE 205, ESE 2971, ESE 359, ESE 400–428, ESE 437, ESE 440–459, ESE 470–499, ESE 502–529, ESE 540–559, and SWCD 5660)</td>
<td>18</td>
</tr>
<tr>
<td>Free electives</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>

The program must include at least 48 units at the 300 level or higher.

The above program assumes completion of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESE 318</td>
<td>Engineering Mathematics A</td>
<td>3</td>
</tr>
<tr>
<td>ESE 319</td>
<td>Engineering Mathematics B</td>
<td>3</td>
</tr>
<tr>
<td>ESE 326</td>
<td>Probability and Statistics for Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Math 132</td>
<td>Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>Math 217</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Math 233</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>Physics 191</td>
<td>Physics I</td>
<td>3</td>
</tr>
<tr>
<td>Physics 191L</td>
<td>Physics I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Physics 192</td>
<td>Physics II</td>
<td>3</td>
</tr>
<tr>
<td>Physics 192L</td>
<td>Physics II Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>