# BIOMEDICAL ENGINEERING

## Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 101 [*]</td>
<td>1</td>
<td>EGR 103 [*]</td>
<td>2</td>
</tr>
<tr>
<td>EGR 102 [*]</td>
<td>2</td>
<td>CIS/WRD 111 [*]</td>
<td>3</td>
</tr>
<tr>
<td>CIS/WRD 110 [*]</td>
<td>3</td>
<td>MA 114 [*]</td>
<td>4</td>
</tr>
<tr>
<td>MA 113 [*]</td>
<td>4</td>
<td>CHE 105 [*]</td>
<td>4</td>
</tr>
<tr>
<td>PHY 231 [*]</td>
<td>4</td>
<td>BIO 148 [*]</td>
<td>3</td>
</tr>
<tr>
<td>PHY 241 [*]</td>
<td>1</td>
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<td></td>
</tr>
</tbody>
</table>

### Notes:
- [a] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.
- [b] Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students" in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.
- [*] Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: BIO 148, BIO 152, BME 201, CHE 105, CIS 110 / WRD 110, CIS 111 / WRD 111, EGR 101, EGR 102, EGR 103, MA 113, MA 114, MA 213, PHY 231, PHY 241, PHY 232 and PHY 242. If the course is repeated the best grade will be used for calculation of GPA in the pre-major courses required for Engineering Standing.
- [#] Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students" in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.
- [∞] Graduation Composition and Communication Requirement (GCCR) course.
# BIOSYSTEMS ENGINEERING

## Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 101[#] Engineering Exploration I</td>
<td>1</td>
</tr>
<tr>
<td>EGR 102 Fundamentals of Engr Computing</td>
<td>2</td>
</tr>
<tr>
<td>CIS/WRD 110 [*][#] Comp &amp; Comm I</td>
<td>3</td>
</tr>
<tr>
<td>MA 113 [*] Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHE 105 [*] General College Chemistry I</td>
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<table>
<thead>
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<th>Second Semester</th>
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<tbody>
<tr>
<td>EGR 103 [#] Engineering Exploration II</td>
<td>2</td>
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<tr>
<td>CIS/WRD 111 [Δ] Comp &amp; Comm II</td>
<td>3</td>
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<tr>
<td>MA 114 [*] Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHY 231 [*] General University Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHY 241 General University Physics I Lab</td>
<td>1</td>
</tr>
<tr>
<td>UK Core</td>
<td>3</td>
</tr>
</tbody>
</table>

### Notes
- [#] Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students" in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.
- [*] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

## Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE 200 [*] Principles of Biosystems Engr</td>
<td>3</td>
</tr>
<tr>
<td>BIO 148 Introductory Biology I</td>
<td>3</td>
</tr>
<tr>
<td>MA 213 [*] Calculus III</td>
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</tr>
<tr>
<td>PHY 222 General University Physics</td>
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</tr>
<tr>
<td>PHY 242 General University Physics Lab</td>
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<tr>
<td>CE 106 Computer Graphics and Communic.</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>MA 214 Calculus IV</td>
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<tr>
<td>BAE 202 Statistical Inferences for Biosys Engr</td>
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<tr>
<td>ME 220 Engineering Thermodynamics I</td>
<td>3</td>
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<tr>
<td>EM 221 Statics</td>
<td>3</td>
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<tr>
<td>CHE 107 General College Chemistry II</td>
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</tr>
<tr>
<td>UK Core</td>
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</tbody>
</table>

### Notes
- [*] Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: CHE 105, CIS/WRD 110, MA 113, MA 114, MA 213, and PHY 231. Completion of BAE 200 with a grade of C or better. If a course is repeated the best grade will be used for calculation of GPA in the pre-major courses required for Engineering Standing.
- [1] A minimum of 9 hours are required from the Biosystems Engineering core courses: BAE 417, BAE 427, BAE 437, and BAE 447.

## Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BAE 301 Economic Analysis for Biosystems</td>
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<tr>
<td>ME 330 Fluid Mechanics</td>
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<tr>
<td>EE 305 Electrical Circuits and Electronics</td>
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<tr>
<td>EM 313 Dynamics</td>
<td>3</td>
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<tr>
<td>BIO 152 Principles of Biology II</td>
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<td>WRD 204 [*] Technical Writing</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BAE 305 DC Circuits and Microelectronics</td>
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<tr>
<td>EM 302 Mechanics of Deformable Solids</td>
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<tr>
<td>BAE 310 Heat &amp; Mass Transf in Biosystems Engr</td>
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<tr>
<td>Core Elective (1)</td>
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<td>UK Core</td>
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### Notes
- [1] A minimum of 9 hours are required from the Biosystems Engineering core courses: BAE 417, BAE 427, BAE 437, and BAE 447.

## Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BAE 402 Biosystems Engineering Design I</td>
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<td>BAE 400 Senior Seminar</td>
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<td>Core/Tech Elect [1]</td>
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<td>Core/Tech Elect [1]</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BAE 403 Biosystems Engineering Design II</td>
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<tr>
<td>BAE 502 Modeling of Bio Systems</td>
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<tr>
<td>Core/Tech Elect [1]</td>
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<tr>
<td>UK Core</td>
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</table>

### Notes
- [1] A minimum of 9 hours are required from the Biosystems Engineering core courses: BAE 417, BAE 427, BAE 437, and BAE 447.

A minimum of 9 hours (technical electives) are to be taken in addition to the 9 core hours selected by the student. The technical electives allow the student an opportunity to concentrate or gain depth in one or more of the various specialty areas of biosystems engineering. The technical electives must be selected from the courses listed below and approved by the student’s academic advisor. Other courses may be considered, each on its individual merit.


### CHEMICAL ENGINEERING

#### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EGR 101[#]</td>
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<td>MA 113</td>
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<td>CHE 105</td>
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<td>CHE 111</td>
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<td>EGR 103[#]</td>
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#### Sophomore Year

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<tbody>
<tr>
<td>CME 200[*]</td>
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<td>MA 213</td>
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<td>CHE 107[*]</td>
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<td>CHE 113[*]</td>
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<td>MSE 201</td>
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<td>CME 320</td>
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<td>MA 214</td>
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<td>PHY 232</td>
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<td>STA 381</td>
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#### Junior Year

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<td>CME 330</td>
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<td>CME 415</td>
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<td>CHE 230</td>
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<td>CHE 231</td>
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<td>WRD 204 (=)</td>
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<table>
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<td>CME 006</td>
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<td>CME 420</td>
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<td>CME 425</td>
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<tr>
<td>CME 432</td>
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<td>Engr/Sci Elect</td>
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#### Senior Year

<table>
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<td>CME 006</td>
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<td>CME 433</td>
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<td>CME 455</td>
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<td>CME 470</td>
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<td>CME 550</td>
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<td>Engr/Sci Elect</td>
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<td>CME 462</td>
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<tr>
<td>Engr/Sci Elect</td>
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<td>UK Core</td>
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</tbody>
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**Notes:**

1. Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: CHE 105, CHE 107, CHE 111, CHE 113, CIS/WRD 110, MA 113, MA 114, MA 213, and PHY 231. Completion of CME 200 with a grade of C or better. If a course is repeated the best grade will be used for calculation of GPA in the courses required for Engineering Standing.

2. Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

3. Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students" in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.

4. Engineering/Science Elective Structure. Students must select four courses as follows:
   1. Chemical Engineering elective (CME 395, 404G, 405, 515, 523, 542, 554, 556, 570, 573, 580, 599)
   2. Science/math elective (totaling three or more credit hours) that is not a more elementary version of a required course. [Students may combine multiple qualifying courses that total 3 credits (e.g. pre-medical students may wish to combine PHY 241, 242 and CHE 235]}
   3. Other courses by approval of Director of Undergraduate Studies
   4. Chemical engineering elective (CME 395 and above) OR one chemistry elective (level 300 and above) OR one science/math elective as described above.

*[*] CME 395 (3 credits) may be used to satisfy only one elective requirement.
# Civil Engineering

## Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EGR 101 [*] Engineering Exploration I</td>
<td>1</td>
</tr>
<tr>
<td>EGR 102 Fundamentals of Engr Computing</td>
<td>2</td>
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<tr>
<td>CIS/WRD 110 [*][a] Comp &amp; Comm I</td>
<td>3</td>
</tr>
<tr>
<td>MA 113[*] Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHE 105[*] General College Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>EGR 103 [*][#] Engineering Exploration II</td>
<td>2</td>
</tr>
<tr>
<td>CIS/WRD 111 [a] Comp &amp; Comm II</td>
<td>3</td>
</tr>
<tr>
<td>MA 114[*] Calculus II</td>
<td>4</td>
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<tr>
<td>PHY 231[*] General University Physics I</td>
<td>4</td>
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<tr>
<td>PHY 241[*] General University Physics I Lab</td>
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## Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CE 211 [*] Surveying</td>
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<tr>
<td>CHE 107[*] General College Chemistry II</td>
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<tr>
<td>EM 221[*] Statics</td>
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<tr>
<td>MA 213[*] Calculus III</td>
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<tr>
<td>CE 106 [*] Comp &amp; Comm I</td>
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<tr>
<td>EGR 215 &quot;Introduction to the Practice of Engineering for Transfer Students&quot;</td>
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## Junior Year

<table>
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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>WRD 204 [=] Technical Writing</td>
<td>3</td>
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<tr>
<td>EES 220 Principles of Physical Geology</td>
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<tr>
<td>CE 303 Intro to Construction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE 341 Intro to Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>CE 381 Civil Engineering Materials I</td>
<td>3</td>
</tr>
<tr>
<td>CE 331 Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE 351 Intro to Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE 482 Structural Analysis and Design</td>
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</tr>
<tr>
<td>MA 321 (MAT 351 or 352), MA 322 (MAT 271), MA 416G, MA 432G, BIO 208, CHE 230 (CHE 201), CHE 236, EE 305, GEO 409, EES 550, EES 585, MNG 551, or the other half of the Engineering Science Elective in [1]. NOTE: MA 322 is required for a Math minor.</td>
<td>3</td>
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## Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CE 401 Seminar</td>
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<tr>
<td>CE 429 Civil Engineering Systems Design</td>
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<td>Design Elective [4]</td>
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<td>UK Core</td>
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</table>

### Notes:

[*] Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: CE 106, CE 211, CHE 105, CHE 107, CIS/WRD 110, EGR 103, EM 221, MA 113, MA 114, MA 213, PHY 231 and PHY 241 and a C or better in each course. If a course is repeated the best grade will be used for calculation of GPA in the courses required for Engineering Standing.

[a] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

 [=] Graduation Composition and Communication Requirement (GCCCR) course.

[8] Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students" in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.

[1] EGR Science Elective: To be chosen from ME 220 or EM 313.


[3] Technical Elective is chosen from any of the courses at the 300-level or above that carry a CE prefix and in which a student is qualified to enroll, exclusive of required courses. Engineering elective courses are typically taught once a year.

[4] Students are required to select two design electives from different areas. Choose from: CE 508, CE 531 or CE 533, CE 534, CE 549, CE 551 or 599, CE 579, CE 589. Design elective courses are typically taught once a year.
<table>
<thead>
<tr>
<th></th>
<th>Freshman Year</th>
<th></th>
<th>Second Semester</th>
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<tbody>
<tr>
<td></td>
<td>First Semester Hours</td>
<td></td>
<td>Hours</td>
<td></td>
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<tr>
<td>EGR 101 [#]</td>
<td>Engineering Exploration I</td>
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<td>EGR 102</td>
<td>Fundamentals of Engr Computing</td>
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<td>CSISWRD 110 [*]</td>
<td>Comp &amp; Comm I</td>
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<tr>
<td>MA 113</td>
<td>Calculus I</td>
<td>MAT 181</td>
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<tr>
<td>CHE 105 [*]</td>
<td>General College Chemistry I</td>
<td>CHE 121</td>
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<td>Sophomore Year</td>
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<td>First Semester Hours</td>
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<td>CPE 380</td>
<td>Computer Organization</td>
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<td>STA 381</td>
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</table>

[*] Courses required for Engineering Standing. A cumulative UK GPA of at least a 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: CHE 105, CISISWRD 110, CS 215, CS 216, EE/CPE 282, and PHY 231. If a course is repeated, the best grade will be used for calculation of GPA in the courses required for Engineering Standing.

[a] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

[#] Transfer students who declare a major and meet the prerequisites will take EGR 215 “Introduction to the Practice of Engineering for Transfer Students” in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.

[*= Graduation Composition and Communication Requirement (GCCR) course.

[2] Technical electives may be selected from upper-division engineering, mathematics, statistics, statistics, computer science, physics, or other technically-related fields excluding more elementary version of required courses. To be selected in consultation with academic advisor. If a student wishes to use CS 499 instead of CPE 490 and CPE 491 to fulfill the GCCR and senior design requirements, the student must receive approval from the DUS to select an additional technical elective that supports the proposed CS 499 project.

[3] 400 level CS courses and 500 level CPE courses with emphasis in the computer engineering area and excluding EE 595. To be selected in consultation with academic advisor.

[4] Hardware electives are senior level courses in the CPE or EE disciplines and shall be selected from the following list and/or selected in consultation with academic advisor:

- EE 582 Hardware Description Languages and Programmable Logic
- CPE 584 Introduction of VLSI Design and Testing
- CPE 585 Fault Tolerant Computing
- CPE 586 Communication and Switching Networks

[5] Software electives are senior level courses in the CPE or CS disciplines and shall be selected from the following list and/or selected with academic advisor:

- CS 441G Compilers for Algorithmic Languages
- CS 471G Networking and Distributed Operating Systems
- CS 570 Modern Operating Systems
- CPE 588 Real-Time Digital Systems
# Computer Science Pathway for Asbury University Transfers - Fall 2020

## Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EGR 101 [#] Engineering Exploration I</td>
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<tr>
<td>EGR 102 Fundamentals of Engr Computing</td>
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<tr>
<td>CIS/WRD 110 ∆ Comp &amp; Comm I</td>
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<tr>
<td>MA 113 Calculus I</td>
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<tr>
<td>CHE 105 or Gen Col Chemistry I or CHE 121</td>
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<tr>
<td>PHY 231 Gen Univ Physics I</td>
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<td>PHY 241 General Physics Lab</td>
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<table>
<thead>
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<td>MA 114 [*] Calculus II</td>
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<td>PHY 231 or Gen Univ Physics I</td>
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</tr>
<tr>
<td>CHE 105 or Gen Col Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CS 215 [*] Intro to Prog Desgn, Alstr &amp; Prob Solved</td>
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</tbody>
</table>

[*] Courses required for Engineering Standing. A cumulative UK GPA of at least a 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: CS 215, CS 216, CS 275, and MA 114. If a course is repeated, the best grade will be used for calculation of GPA in the courses required for Engineering Standing.

[∆] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

[‡] Transfer students who declare a major and meet the prerequisites will take EGR 215 “Introduction to the Practice of Engineering for Transfer Students” in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.

[*] Graduation Composition and Communication Requirement (GCCR) course.

[1] Any natural science course excluding more elementary versions of completed required courses.

[2] Computer Science Elective (18 credit hours) include 300-level and above computer science courses with at least three to be selected from: CS 335, CS 378, CS 405G, CS 441G, CS 450G, CS 460G and CS 463G. Students are encouraged to take advantage of special topics courses, cooperative education, independent studies and undergraduate research.

[3] Technical Electives - include any 300-level and above courses in computer science, electrical engineering, mathematics and business and economics. MA 214 (MAT 252) is an acceptable technical elective. Cooperative education credit may be used to satisfy this requirement.

[4] Elective - including one Free Elective and Non-Technical Elective. As least two of the electives (6 credits) cannot be in computer science, mathematics, science or engineering. Free Elective (3 credits) can be any course that carries college credit and is not a more elementary version of a required courses. Note: at least 128 credit hours; a foreign language requirement.

[5] Science elective - must be selected from either UK Core Natural Science or Social Science approved list or by consent of academic advisor.

## Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MA 213 Calculus III</td>
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<tr>
<td>CS 216 [*] Intro to Software Engr Techniques</td>
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</tr>
<tr>
<td>EE 280 Design of Logic Circuits</td>
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<tr>
<td>CS 275 [*] Discrete Mathematics</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>CS 270 Systems Programming</td>
<td>3</td>
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<tr>
<td>CS 315 Algorithm Design and Analysis</td>
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<td>Science Elective [5]</td>
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## Junior Year

<table>
<thead>
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<tbody>
<tr>
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<tr>
<td>CS/MA 321 Intro to Numerical Meth or MA 322 or Matrix Algebra</td>
<td>3</td>
</tr>
<tr>
<td>CS Elective [2]</td>
<td>3</td>
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<tr>
<td>CS Elective [2]</td>
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<td>STA 381 Engr Statistics: A Conceptual Approach</td>
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<table>
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<th>Second Semester</th>
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<td>CS Elective [2]</td>
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<tr>
<td>Natural Sci Elective[1]</td>
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<td>UK Core</td>
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## Senior Year

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<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CS 498 Software Engr for Senior Project</td>
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<td>Free Elective [4]</td>
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<table>
<thead>
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<th>Second Semester</th>
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<td>CS 499 [*] Senior Design Project</td>
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<td>CS Elective [2]</td>
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<td>Free Elective [3]</td>
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<tr>
<td>Free Elective [3]</td>
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</tbody>
</table>

[*] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

[‡] Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students" in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.

[*] Graduation Composition and Communication Requirement (GCCR) course.

[1] Any natural science course excluding more elementary versions of completed required courses.

[2] Computer Science Elective (18 credit hours) include 300-level and above computer science courses with at least three to be selected from: CS 335, CS 378, CS 405G, CS 441G, CS 450G, CS 460G and CS 463G. Students are encouraged to take advantage of special topics courses, cooperative education, independent studies and undergraduate research.

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[4] Elective - including one Free Elective and Non-Technical Elective. As least two of the electives (6 credits) cannot be in computer science, mathematics, science or engineering. Free Elective (3 credits) can be any course that carries college credit and is not a more elementary version of a required courses. Note: at least 128 credit hours; a foreign language requirement.

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### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EGR 101 [#]</td>
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<td>EGR 103 [#]</td>
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<td>EGR 102</td>
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<td>CIS/WRD 111 [#]</td>
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<td>Comp &amp; Comm I</td>
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<td>MA 114</td>
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<td>MA 113</td>
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<td>CHE 105 [#]</td>
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### Sophomore Year

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<tbody>
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<td>PHY 232</td>
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<td>EE 223</td>
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<td>PHY 242</td>
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<td>EE/CPE 287</td>
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<td>EE 211 [*]</td>
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<td>EE/CPE 282 [*]</td>
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### Junior Year

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<td>EE 468G</td>
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<td>EE 421G</td>
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<td>EE Lab Elective [4]</td>
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<td>EE 461G</td>
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<td>MA 320/STA 381</td>
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### Senior Year

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<td>EE/CPE 480 (*)</td>
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<td>EE/CPE 491 (*)</td>
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<td>ECE Capstone Design I</td>
<td>3</td>
<td>ECE Capstone Design II</td>
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</table>

[*] Courses required for Engineering Standing. A cumulative UK GPA of at least a 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: CIS/WRD 110, CHE 105, CS 215, EE 211, EE/CPE 282, and PHY 231. If a course is repeated, the best grade will be used for calculation of GPA in the courses required for Engineering Standing.

[+] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

[4] Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students" in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement

[=] Graduation Composition and Communication Requirement (GCCCR) course.

[1] Math/Statistics Elective: Any upper-division (300-level or higher) math or statistics course excluding MA 308 and MA 310 (3 credit hours total).

[2] Engineering/Science Electives: Any engineering, physics, computer science, or math course at the 200-level or higher, other than an electrical engineering course and excluding MA 308, MA 310, and more elementary versions of required courses (6 credit hours total). Cooperative education credit may not be used to satisfy this requirement.

[3] Technical elective may be selected from upper-division (300-level or higher) engineering, mathematics, statistics, computer science, physics, or other technically-related fields excluding MA 308, MA 310, EE 305 and more elementary versions of required courses, to be selected in consultation with the academic advisor (3 credit hours total). Cooperative education credit may not be used to satisfy this requirement.


### Freshman Year

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<td>EGR 102</td>
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<td>CIS/WRD 110 [*] [()]</td>
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<td>MA 113[*]</td>
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<td>CHE 105[*]</td>
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<td>CHE 111[*]</td>
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<td>PHY 241[*]</td>
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*Course numbers in brackets are for transfer students.*

### Sophomore Year

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### Junior Year

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<td>EM 302</td>
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### Senior Year

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<td>EE 305</td>
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<td>MSE 538</td>
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<td>Technical Elect [1]</td>
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</table>

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 [*\(\)] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

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 [\(\)\(\)] Graduation Composition and Communication Requirement (GCCR) course.

 [1] Technical Electives - total of 6 credit hours and must be chosen. Technical electives are to be selected from a technical discipline, with approval from the Director of Undergraduate Studies. At least 3 credit hours must come from a course with a MSE prefix. MSE 395 (research) may count for one elective, but not both. Recommended technical electives include but are not limited to: MSE 395, 506, 531, 552, 554, 556, 569, 599; BME 488; CHE 580; CME 542, 599; MA 322 (MAT 271), 422 (MAT 442), 432G; ME/MFS 503
# Mechanical Engineering Pathway for Asbury University Transfers - Fall 2020

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Hours</th>
<th>Second Semester</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>EGR 101 [*][#]</td>
<td>Engineering Exploration I</td>
<td>1</td>
<td>EGR 103 [*][#]</td>
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<td>EGR 102 [*]</td>
<td>Fundamentals of Engineering Computing</td>
<td>2</td>
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<td>CIS/WRD 110 (A)</td>
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<td>MA 114[*]</td>
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<td>MA 113[*]</td>
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<td>4</td>
<td>CHE 105[*]</td>
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<tr>
<td>PHY 231[*]</td>
<td>General University Physics I</td>
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<tr>
<td>PHY 241 [*]</td>
<td>General University Physics Lab</td>
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<thead>
<tr>
<th>Sophomore Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MA 213 [*]</td>
<td>Calculus III</td>
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<td>MA 214</td>
<td>Calculus IV</td>
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<tr>
<td>PHY 232 [*]</td>
<td>General University Physics II</td>
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<td>ME 220</td>
<td>Engineering Thermodynamics</td>
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<td>PHY 242 [*]</td>
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<td>ME 251</td>
<td>Intro to Matls &amp; Mfg Processes</td>
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<tr>
<td>EM 221 [*]</td>
<td>Statics</td>
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<td>EM 313</td>
<td>Dynamics</td>
</tr>
<tr>
<td>ME 205</td>
<td>Computer Aided Engr Graphics</td>
<td>3</td>
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<td>General College Chemistry II</td>
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<tr>
<td>UK Core</td>
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<thead>
<tr>
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<th>First Semester</th>
<th>Hours</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>EM 302</td>
<td>Mechanics of Deformable Solids</td>
<td>3</td>
<td>ME 310</td>
<td>Engineering Experimentation I</td>
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<tr>
<td>EE 305</td>
<td>Electrical Circuits and Electronics</td>
<td>3</td>
<td>ME 321</td>
<td>Engineering Thermodynamics II</td>
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<tr>
<td>ME 330</td>
<td>Fluid Mechanics</td>
<td>3</td>
<td>ME 325</td>
<td>Elements of Heat Transfer</td>
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<tr>
<td>ME 340</td>
<td>Intro to Mechanical Systems</td>
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<td>ME 344</td>
<td>Mechanical Design</td>
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<td>WRD 204 [*]</td>
<td>Technical Writing</td>
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<th>Senior Year</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>ME 411</td>
<td>ME Capstone Design I</td>
<td>3</td>
<td>ME 412</td>
<td>ME Capstone Design II</td>
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<tr>
<td>ME 311</td>
<td>Engineering Experimentation II</td>
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<td>Technical Elect [1]</td>
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<td>ME 440</td>
<td>Design of Control Systems</td>
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<td>Technical Elect [1]</td>
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<td>ME 501</td>
<td>Mech Design w/ Finite Element Meth</td>
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<td>Technical Elect [1]</td>
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</table>

[*] Courses required for Engineering Standing. A cumulative UK GPA of at least 2.5 and successful completion of all pre-major courses. Successful completion of the following pre-major courses with at least a 2.5 GPA: CHE 105, CIS/WRD 111, EGR 101, EGR 102, GR 103, EM 221, MA 113, MA 114, MA 213, PHY 231, PHY 241, PHY 232, and PHY 242 and a C or better in each course. If a course is repeated, the best grade will be used for calculation of GPA in the courses required for Engineering Standing.

[#] Transfer students who declare a major and meet the prerequisites will take EGR 215 “Introduction to the Practice of Engineering for Transfer Students” in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.

[*#] Students taking ENG 101 (ENG 110) and ENG 102 (ENG 151 OR 251) should also fulfill Oral Communications requirement.

[2] Students are allowed one non-technical Mechanical Engineering Elective: BAE 502, 515, 516; BME 405, 472, 485, 488, 508, 515, 530, 540, 579, 580; EGR 537, 540, 542, 546, 553; MFS 509, MNG/MFS 520, MFS 525, 599; MSE 201


### MINING ENGINEERING

#### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGR 101 [*]</td>
<td>Engineering Exploration I</td>
</tr>
<tr>
<td>EGR 102</td>
<td>Fundamentals of Engr Computing</td>
</tr>
<tr>
<td>CIS/WRD 110</td>
<td>Comp &amp; Comm I</td>
</tr>
<tr>
<td>MA 113 [*]</td>
<td>Calculus I</td>
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<tr>
<td>CHE 105 [*]</td>
<td>General College Chemistry I</td>
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#### Second Semester

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#### Sophomore Year

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<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EES 220</td>
<td>Principles of Physical Geology</td>
</tr>
<tr>
<td>EM 221</td>
<td>Statics</td>
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<tr>
<td>MA 213 [*]</td>
<td>Calculus III</td>
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<tr>
<td>MNG 201</td>
<td>Mining Engineering Fundamentals</td>
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<td>PHY 232</td>
<td>General University Physics</td>
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#### Junior Year

<table>
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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EM 313</td>
<td>Dynamics</td>
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<tr>
<td>MNG 211</td>
<td>Mine Surveying</td>
</tr>
<tr>
<td>MNG 301</td>
<td>Minerals Processing</td>
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<td>MNG 335 (2)</td>
<td>Intro to Mine Systems Analysis</td>
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<td>MNG 463</td>
<td>Surface Mine Design</td>
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| UK Core | 3 |

#### Second Semester

<table>
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<tr>
<th>Hours</th>
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#### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MNG 332</td>
<td>Mine Plant Machinery</td>
</tr>
<tr>
<td>MNG 341</td>
<td>Mine Ventilation</td>
</tr>
<tr>
<td>MNG 351</td>
<td>Underground Mine Design</td>
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<tr>
<td>MNG 591</td>
<td>Mine Design Project I</td>
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| UK Core | 3 |

#### Second Semester

<table>
<thead>
<tr>
<th>Hours</th>
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<tr>
<td>3</td>
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[a] Transfer students who declare a major and meet the prerequisites will take EGR 215 "Introduction to the Practice of Engineering for Transfer Students“ in place of EGR 101 and EGR 103. EGR 215 will fulfill UK Core: Arts & Creativity requirement.

[+] Graduation Composition and Communication Requirement (GCCR) course.

[v] Offered only in the Spring semester for Mining students.


[2] MNG 335 satisfies the Statistical Inferential Reasoning requirement in the UK Core.

[3] Technical Electives: These courses must be chosen with the approval of the student’s advisor to ensure that the curriculum includes sufficient engineering design content. Students are required to select their technical elective from the departmental courses listed below: MNG 511, 531, 541, 552, 555, 561, 575, 580, 585, 599; MNG/MFS 520.