BSCE CIVIL CURRICULUM FLOWCHART (2015-16) 130 credits (pending BOR approval)

First Semester
- Engl 101 Composition I (3cr)
- Math 123 Calculus I (4cr)
- English 279 Technical Com I (3cr)
- Chem 112 General Chem I (3cr)
- Math 211 University Phys (3cr)
- CEE 130/L Intro to CEE (2cr)
- CEE 117 S Comp. Aided Design (2cr)
- CEE 206 F Engineering Surveys (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Second Semester
- Engl 279 F/S Technical Com II (3cr)
- Math 125 Calculus II (4cr)
- Math 225 F/S Calculus III (4cr)
- Chem 114 General Chem II (3cr)
- EM 214 F S Statics (3cr)
- EM 331 F/S Fluid Mechanics (3cr)
- EM 321 F/S Mechanics of Materials (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Third Semester
- Engl 279 F/S Technical Com II (3cr)
- Math 225 F/S Calculus III (4cr)
- Math 321 F/S Differential Eq. (3cr)
- Chem 114 General Chem II (3cr)
- EM 214 F S Statics (3cr)
- EM 331 F/S Fluid Mechanics (3cr)
- EM 321 F/S Mechanics of Materials (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Fourth Semester
- Math 125 Calculus II (4cr)
- Math 225 F/S Calculus III (4cr)
- Math 321 F/S Differential Eq. (3cr)
- Chem 114 General Chem II (3cr)
- EM 214 F S Statics (3cr)
- EM 331 F/S Fluid Mechanics (3cr)
- EM 321 F/S Mechanics of Materials (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Fifth Semester
- Math 125 Calculus II (4cr)
- Math 225 F/S Calculus III (4cr)
- Math 321 F/S Differential Eq. (3cr)
- Chem 114 General Chem II (3cr)
- EM 214 F S Statics (3cr)
- EM 331 F/S Fluid Mechanics (3cr)
- EM 321 F/S Mechanics of Materials (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Sixth Semester
- Math 125 Calculus II (4cr)
- Math 225 F/S Calculus III (4cr)
- Math 321 F/S Differential Eq. (3cr)
- Chem 114 General Chem II (3cr)
- EM 214 F S Statics (3cr)
- EM 331 F/S Fluid Mechanics (3cr)
- EM 321 F/S Mechanics of Materials (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Seventh Semester
- Math 125 Calculus II (4cr)
- Math 225 F/S Calculus III (4cr)
- Math 321 F/S Differential Eq. (3cr)
- Chem 114 General Chem II (3cr)
- EM 214 F S Statics (3cr)
- EM 331 F/S Fluid Mechanics (3cr)
- EM 321 F/S Mechanics of Materials (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Eighth Semester
- Math 125 Calculus II (4cr)
- Math 225 F/S Calculus III (4cr)
- Math 321 F/S Differential Eq. (3cr)
- Chem 114 General Chem II (3cr)
- EM 214 F S Statics (3cr)
- EM 331 F/S Fluid Mechanics (3cr)
- EM 321 F/S Mechanics of Materials (3cr)
- CEE 326 F Environmental Engr I (3cr)
- CEE 328 F S App. Numerical Methods (3cr)
- CEE 316/L F Construction Materials (3cr)
- CEE 353 F Structural Theory (3cr)
- CEE 346/L F Geotechnical Engr I (3cr)
- ME 221 F/S Dynamics (3cr)
- Select Three of Four
  - CEE 325 S Intro to Sustain Design (3cr)
  - CEE 347 S Geotechnical Engr II (3cr)
  - CEE 346 F Geotechnical Engr I (3cr)
  - Department Approved Elective (3cr)

Notes: This worksheet is for planning information only and does not supersede requirements as stated in the university catalog.
Courses that are offered in Fall ONLY or Spring ONLY are indicated by F or S respectively. Courses indicated F/S are offered Fall and Spring Semesters.
* Refer to the catalog for Humanities & Social Sciences courses needed to meet Goal 3 and 4 requirements.
** Prereqs for ME 211 are Math 125 and Phys 211; prereqs for CBE 222 are Math 125 and Chem 114.
*** Math/science electives listed on back of sheet. A complete list of dept. approved electives is available at http://www.sdsmt.edu/Academics/Departments/Civil-Environmental-Engineering/Roadmap-To-Success.
Either GEOE 221/221L or GEOL 201 may be taken, but not both. GEOL 416 is not a basic science elective.

February 8, 2015
The BSCE curriculum includes 12 credit hours (15 for environmental emphasis students – see EnvE emphasis flow chart) of Department Approved Electives that students may use to broaden their education in civil and environmental engineering areas, gain knowledge and skills in a specialized area or create a knowledge base tailored to their individual career goals.

Department Approved Electives include the following:

- **At least 9 credits of CEE 400-, 500-, or 600-level coursework not applied to another BSCE graduation requirement.** Accelerated MS CENE degree students may take 500 and 600-level courses. Classes cross-listed with CEE prefix courses also meet this requirement.

- Up to 6 credit hours of CEE 498 (Undergraduate Research/Scholarship), CEE 491 (Independent Study) or CP 497 (Cooperative Education); not more than 3 credits may be CEE 491 or CP 497. Students taking CEE 498 must work with a faculty member and submit a summary of their research/scholarship/independent study plans to the CEE department head prior to enrolling. The form is available here: [http://www.sdsmt.edu/Academics/Departments/Civil-and-Environmental-Engineering/Roadmap-To-Success/](http://www.sdsmt.edu/Academics/Departments/Civil-and-Environmental-Engineering/Roadmap-To-Success/).

- Up to 3 credit hours of 300, 400, 500 or 600-level courses in engineering, science, math or computer science not applied to another BSCE graduation requirement (6 credits for BSCE - environmental engineering emphasis students). Accelerated MS CENE degree students may take 500 and 600-level courses. A complete list of science and department approved electives is available at [http://www.sdsmt.edu/Academics/Departments/Civil-and-Environmental-Engineering/Roadmap-To-Success/](http://www.sdsmt.edu/Academics/Departments/Civil-and-Environmental-Engineering/Roadmap-To-Success/).

### Science and Mathematics Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>#</th>
<th>Title</th>
<th>Cr</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>AES</td>
<td>201</td>
<td>Introduction to Atmospheric Sciences</td>
<td>3</td>
<td>CHEM 106 or 112, BIOL 151, PHYS 111 or 211</td>
</tr>
<tr>
<td>AES</td>
<td>403/503</td>
<td>Biogeochemistry</td>
<td>3</td>
<td>MATH 125, CHEM 106 or 112</td>
</tr>
<tr>
<td>AES</td>
<td>405/505</td>
<td>Air Quality (spring of even years)</td>
<td>3</td>
<td>CHEM 112, PHYS 111, 211, or 213, or BIOL 311</td>
</tr>
<tr>
<td>BIOL</td>
<td>151</td>
<td>General Biology I</td>
<td>3</td>
<td>BIOL 151</td>
</tr>
<tr>
<td>BIOL</td>
<td>153</td>
<td>General Biology II</td>
<td>3</td>
<td>BIOL 151</td>
</tr>
<tr>
<td>BIOL</td>
<td>311</td>
<td>Principles of Ecology</td>
<td>3</td>
<td>BIOL 151, CHEM 106, or CHEM 112</td>
</tr>
<tr>
<td>BIOL</td>
<td>331</td>
<td>Microbiology</td>
<td>3</td>
<td>BIOL 151, CHEM 106, or CHEM 112</td>
</tr>
<tr>
<td>BIOL</td>
<td>341</td>
<td>Microbial Processes in Eng. and Nat. Sciences</td>
<td>3</td>
<td>CHEM 112</td>
</tr>
<tr>
<td>BIOL</td>
<td>371</td>
<td>Genetics</td>
<td>3</td>
<td>BIOL 151</td>
</tr>
<tr>
<td>BIOL</td>
<td>431</td>
<td>Industrial Microbiology</td>
<td>3</td>
<td>CHEM 114</td>
</tr>
<tr>
<td>CHEM</td>
<td>316</td>
<td>Fundamentals of Organic Chemistry</td>
<td>3</td>
<td>CHEM 114</td>
</tr>
<tr>
<td>CHEM</td>
<td>326/326L</td>
<td>Organic Chemistry I</td>
<td>3</td>
<td>CHEM 114</td>
</tr>
<tr>
<td>CHEM</td>
<td>326/326L</td>
<td>Organic Chemistry II</td>
<td>3</td>
<td>CHEM 114</td>
</tr>
<tr>
<td>CHEM</td>
<td>342</td>
<td>Physical Chemistry I</td>
<td>3</td>
<td>CHEM 114 and PHYS 213 and MATH 225 or 321</td>
</tr>
<tr>
<td>CHEM</td>
<td>344</td>
<td>Physical Chemistry II</td>
<td>3</td>
<td>CHEM 342 and PHYS 213</td>
</tr>
<tr>
<td>CHEM</td>
<td>464/564</td>
<td>Biochemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM</td>
<td>482/582</td>
<td>Environmental Chemistry</td>
<td>3</td>
<td>CHEM 316 or 328</td>
</tr>
<tr>
<td>MATH</td>
<td>315</td>
<td>Linear Algebra</td>
<td>3</td>
<td>MATH 225 or permission of instructor</td>
</tr>
<tr>
<td>MATH</td>
<td>335</td>
<td>Linear Optimization</td>
<td>3</td>
<td>MATH 225</td>
</tr>
<tr>
<td>MATH</td>
<td>373</td>
<td>Introduction to Numerical Analysis</td>
<td>3</td>
<td>MATH 321 and CSC 150/150L</td>
</tr>
<tr>
<td>MATH</td>
<td>381</td>
<td>Introduction to Probability and Statistics</td>
<td>3</td>
<td>MATH 125</td>
</tr>
<tr>
<td>MATH</td>
<td>382</td>
<td>Probability Theory and Statistics II</td>
<td>3</td>
<td>MATH/ENG 381</td>
</tr>
</tbody>
</table>