## B.S. Civil Engineering - Engineering MATH 2017

<table>
<thead>
<tr>
<th>FRESHMAN</th>
<th>SOPHOMORE</th>
<th>JUNIOR</th>
<th>SENIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong> (17 hrs)</td>
<td><strong>Spring</strong> (16 hrs)</td>
<td><strong>Fall</strong> (16.5 hrs)</td>
<td><strong>Spring</strong> (16 hrs)</td>
</tr>
<tr>
<td>CVEEN 1000 Intro to Civil &amp; Environmental Engineering</td>
<td>General Ed. Requirement/DV</td>
<td>CVEEN 2010 Statics</td>
<td>WRTG 2010</td>
</tr>
<tr>
<td>MATH 1310 Engineering Calculus I (QR)</td>
<td>MATH 1320 Engineering Calculus II</td>
<td>CVEEN 2140 Strength of Materials</td>
<td>CVEEN 3100 Technical Communication (CW)</td>
</tr>
<tr>
<td>WRTG 1010 Intermediate Writing</td>
<td>CHEM 1210 Gen Chemistry I</td>
<td>CVEEN 2010</td>
<td>CVEEN 3100 &amp; 2310</td>
</tr>
<tr>
<td>CHEM 1220 Gen Chemistry II</td>
<td>CHEM 1225 Gen Chemistry II Lab</td>
<td>CHEM 3210 Structural Loads &amp; Analysis (QI)</td>
<td>CHEM 3310 Geotech I (QI)</td>
</tr>
<tr>
<td>PHYS 2210 Physics for Sci &amp; Engineers</td>
<td>PHYS 2220 Physics for Sci &amp; Engineers I Lab</td>
<td>ME EN 2030 Particle Dynamics</td>
<td>Design Technical Elective</td>
</tr>
<tr>
<td>MATH 1050 or MATH 1060</td>
<td>MATH 2250 Diff Equations &amp; Linear Algebra</td>
<td>CVEEN 2310 Probability &amp; Statistics</td>
<td>MATH 1310 &amp; PHYS 2210</td>
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<tr>
<td>MATH 1060 Surveying</td>
<td>MATH 3140 Engineering Vector Calculus &amp; PDE’s</td>
<td>MATH 1080 Calculus I</td>
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<tr>
<td>CHEM 1215 Lab</td>
<td>MSE 2170 Elements of MSE</td>
<td>CVEEN 3510 Materials</td>
<td>CVEEN 3515 Lab</td>
</tr>
<tr>
<td>MATH 1310</td>
<td>CVEEN 2140 &amp; 2310</td>
<td>CVEEN 3520 Transportation</td>
<td>CVEEN 3610 Environmental I</td>
</tr>
<tr>
<td>CHEM 1215 Lab</td>
<td>CHEM 1225 Gen Chemistry II Lab</td>
<td>CVEEN 2140 &amp; 2310</td>
<td>Technical Elective</td>
</tr>
<tr>
<td>PHYS 2225 Physics for Sci &amp; Engineers II Lab</td>
<td>PHYS 2225 Physics for Sci &amp; Engineers II Lab</td>
<td>CVEEN 3100 Environmental Engineering I</td>
<td>Technical Elective</td>
</tr>
</tbody>
</table>

### Have you completed 3 of the 4 shaded courses? Is your EGPA 2.5? If yes, apply for Full Major Status!

### Recommended General Education Courses:
- LEAP 1501 Social & Ethical Engineering (BF) - Fall only
- LEAP 1500 Humanities for Engineers (HFDV) - Spring only

Total Required Credit Hours: 127.5
Congratulations on reaching the Technical Electives! These delve deeper into the various areas covered in the 3000-level courses. A total of 6 Technical Electives, with the exception of Fastrax students, are required. While you are able to take courses in your areas of interest, further specialization is achieved by pursuing Graduate School.

Primary Technical Electives

To graduate with a Bachelor of Science Degree in Civil Engineering you must:

1. Take at least one course from 3 of the 5 emphasis areas in the Primary section. Three different checkboxes must be marked to fulfill this requirement.
2. Complete at least two Design courses from different emphasis areas. These are designated by a shaded box. Example: CVEEN 4221 and CVEEN 5420

As long as these requirements are satisfied, you may take the remaining 3 technical electives in either section.

Environmental
- CVEEN 5605 Water and Wastewater Treatment
  - CVEEN 3610 & 3615
- CVEEN 4221 Concrete I
  - F 3
- CVEEN 3210
- CVEEN 4222 Steel I
  - SP 3

Structures
- CVEEN 4221
- CVEEN 3610 & 3615

Geotech & Materials
- CVEEN 5305 Introduction to Foundations
  - F 3
- CVEEN 3310 & 3315
- CVEEN 3510 & 3515
- CVEEN 5500 Sustainable Materials
  - SP 3

Transportation
- CVEEN 5510 Highway Design
  - SP 3
- CVEEN 3520
- CVEEN 5560 Transportation Planning
  - SP 3
- CVEEN 3410 & 3415 Open-Channel
- CVEEN 3420

Water Resources
- CVEEN 5410 Engineering Hydrology
  - SP 3
- CVEEN 3410 & 3415

Secondary Technical Electives

With the exception of Construction, where only one course may be taken, you may take multiple courses in a single emphasis area — up to a total of 3 courses.

Environmental
- CVEEN 3610 & 3615
- CVEEN 3210
- CVEEN 4222

Structures
- CVEEN 5210 Structural Analysis II
  - SP 3
- CVEEN 5230 Steel II
  - SP 3
- CVEEN 4221
- CVEEN 2210

Geotech & Materials
- CVEEN 5710 Cost Estimation & Proposal Writing
  - F 18/20 3
- CVEEN 3100
- CVEEN 5720 Project Scheduling
  - SP 18/20 3

Construction (Max 1)
- CVEEN 5710
- CVEEN 5730 Project Management & Contract Administration
  - SP 18/20 3

Nuclear Engineering
- CHEM 1220, PHYS 2220, MATH 1220
- CVEEN 1400 & MG EN 2400
- NUCL 3000 Nuclear Principles in Engineering & Science
  - F 3
- NUCL 3100 Neutron Based Engineering
  - SP 3

Other
- CHEM 1220, PHYS 2220, MATH 1220
- CVEEN 1400 & MG EN 2400
- NUCL 3000
- NUCL 3100

Caveat: Semester availability is subject to change at the discretion of the department and does not create a binding contractual nexus or obligation between the student and the University of Utah.