## Civil Engineering

### Freshman Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 1371 Calculus I (placement into course or pre-req)</td>
<td>Math 1372 Calculus II (1371)</td>
</tr>
<tr>
<td>Phys 1301W Intro Physics I (&amp;Math 1371)</td>
<td>Phys 1302W Intro Phys II (1301, &amp;Math 1372)</td>
</tr>
<tr>
<td>Chem 1061 Chem Princ I (placement into course or 1015, &amp;1065)</td>
<td>Chem 1062 Chem Prin II (1061/65, &amp;1066)</td>
</tr>
<tr>
<td>CSE 1001 1st Yr Experience</td>
<td>Liberal Education course or Writ 1301 (recommend Biol 1001 or 1009)</td>
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<tr>
<td>Liberal Education course or Writ 1301</td>
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### Sophomore Year

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<thead>
<tr>
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<th>Spring Semester</th>
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<tbody>
<tr>
<td>Math 2374 Multivariable Calc (1372)</td>
<td>Math 2373 Lin Alg/Diff Eq (1372)</td>
</tr>
<tr>
<td>CEGE 3101 Comp App I (CSE, Phys 1301, Math 1372)</td>
<td>CEGE 3201 Transport Engrg (Phys 1301, &amp;3101, &amp;3102)</td>
</tr>
<tr>
<td>CEGE 3102 Uncert &amp; Dec Analysis (Math 1372)</td>
<td>CEGE 3501 Environ Engrg (Chem 1062-66, Phys 1302)</td>
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<tr>
<td>Liberal Education course</td>
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### Junior Year

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<tr>
<th>Fall Semester</th>
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<tbody>
<tr>
<td>AEM 2012 Dynamics (CSE, 2011, &amp;Math 2373)</td>
<td>CEGE 4401 Steel/Concr Des (UD, 3401, &amp;3402)</td>
</tr>
<tr>
<td>CEGE 3401 Linear Struct An (CSE, AEM 3031)</td>
<td>CEGE 4501 Hydrologic Des (3102, 3502)</td>
</tr>
<tr>
<td>CEGE 3502 Fluid Mechanics (CSE, 3101, AEM 2012 or 3031, Math 2373)</td>
<td>CEGE 4502 Water/Waste Trt (3501, or ChEn 2001)</td>
</tr>
<tr>
<td>CEGE 3301 Soil Mech I (CSE, 3101, AEM 3031)</td>
<td>CEGE 3402W Civil Engrg Matls (CSE, AEM 3031 or BBE 3001)</td>
</tr>
<tr>
<td>CEGE 3103 Ethics &amp; Prof Pract (UD)</td>
<td>Technical Elective I</td>
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<tr>
<td>Liberal Education course</td>
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### Senior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>CEGE 4301 Soil Mech II (UD, 3301, or GeoE 3301)</td>
<td>CEGE 4102W Capstone Des (4101, 4301, 4401, 4501, 4502)</td>
</tr>
<tr>
<td>CEGE 4101 Proj Mgmt &amp; Engrg Econ+ (UD)</td>
<td>Technical Elective IV</td>
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<tr>
<td>Technical Elective II</td>
<td>Technical Elective V</td>
</tr>
<tr>
<td>Technical Elective III</td>
<td>Technical Elective VI</td>
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<tr>
<td>Liberal Education course</td>
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</table>

+ Not required for students admitted prior to Fall 2017; recommend as Tech Elective.

### About This Plan
- This plan is not a contract. Curriculum can change. The APAS is the official method for tracking completion of University degree requirements.
- Shaded courses are only offered in the indicated semester.
- Course pre-requisites and co-requisites (designated by &) are listed below the course number and title. Upper Division (UD) requires admission to the major prior to enrollment.
- Students can take either the CSE-only or University-wide versions of the math course (Math 1371/1271, 1372/1272, 2373/2243, 2374/2263).
- AEM 2021 can substitute for AEM 2011; students must then take an alternative course for AEM 2012 (choose from: EE 2001, MatS 2001, CSci 1113, ME 3331, Chem 2301).

### Applying to your Major
Students who have completed the required courses for admission to this major (indicated with double boxes on plan) and have a 3.2 UM-TC technical GPA at the end of the fall semester will be guaranteed admission. All other students who have completed the required courses will be considered for admission on a space-available basis. Admission following the spring semester is only based on space availability. The major application database is available at z.umn.edu/csemajorapp.

**Total Credits Needed for Degree: 125**

### Department Contact Information
- Website: http://z.umn.edu/cegeundergradhandbook
- Main Phone: 612-625-5522
- Main Office: 122 Civil Engineering Building
- Director of Undergraduate Studies: Professor Catherine French
- Email: cfrench@umn.edu

### University Degree Requirements
All students must complete the following Writing & Liberal Education requirements, as noted on their APAS report.

**Writing Requirements:**
- University Writing:
  - Writ 1301/1401 or equivalent
- Writing Intensive (WI):
  - Two: 1xxx or 2xxx level **
  - One: 3/4/5xxx level (in major)*
  - One: 3/4/5xxx level (any dept.)*

Requirements with an (*) will be fulfilled by taking courses at UM-TC required for this major.

**Liberal Education**

<table>
<thead>
<tr>
<th>CORES</th>
<th>THEMES</th>
</tr>
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<tbody>
<tr>
<td>Bio</td>
<td>4 of 5:</td>
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<tr>
<td>Phy*</td>
<td>Civ</td>
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<tr>
<td>His</td>
<td>DSJ</td>
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<tr>
<td>SocS</td>
<td>Env*</td>
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<tr>
<td>Ltr</td>
<td>GP</td>
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<tr>
<td>AH</td>
<td>TS</td>
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<tr>
<td>Mth*</td>
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See link for full Core & Theme names: z.umn.edu/liberaleducation
Civil Engineering

POSSIBLE POSITIONS

- **Civil engineer**: Plan, design, and oversee construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems.

- **Design engineer**: Study, research and develop ideas for new products and the systems used to make them.

- **Field engineer**: Work with project personnel and clients to ensure that work complies with all engineering standards, codes, and specifications. Perform testing and observations on commercial construction projects.

- **Geotechnical engineer**: Analyzes the properties of soil and rock that support and affect the behavior of structures, pavements, and underground facilities.

- **Project engineer/manager**: In addition to the technical knowledge of a civil engineer, project management positions organize and direct workers and materials.

- **Structural engineer**: Analyzes and designs structures such as stadiums, arenas, office buildings, and bridges to ensure they safely and satisfactorily perform their purpose.

- **Transportation engineer**: Designs and maintains all types of transportation components, including highways and streets, mass transit systems, railroads, airports, ports, and harbors.

**Some of these positions may require an advanced degree.**

INDUSTRIES

- Asphalt production
- Community development
- Concrete producer
- Construction/building
- Food processing
- Geological
- Highway design and planning

- Leasing, zoning, and construction
- Municipal transportation
- Pollution control
- Public works projects
- Railroads
- Solid waste and recycling
- State/local government

- Surveying
- Telecommunications
- Transportation
- Urban planning and development
- Water resources

EMPLOYERS

- Alliant Engineering
- American Engineering Testing
- Barr Engineering
- BKBM Engineers
- Black & Veatch
- Bolton & Menk

- Braun Intertec
- City of Minneapolis
- Kimley-Horn & Associates
- MN Dept of Transportation
- Parsons Brinckerhoff
- Short Elliott Hendrickson

- SRF Consulting
- Stantec
- TKDA
- Wenck
- Westwood Professional Services
- WSB & Associates

**CSE Career Outcomes**

**Average Starting Salary:**

$55,471*

**Post-graduation Outcomes:**

*Salary and Career Outcomes gathered from the 2016-2017 CSE Graduation Survey*

Post-graduation outcomes reflect the percentage of students who were employed full-time in their field or were enrolled in a graduate program.

**More Information**

Career Center: cse.umn.edu/career
Salary Information: z.umn.edu/csesalary
More Information on Undergraduate Majors: cse.umn.edu/majors

Please visit the Career Center to continue exploring this major.