# CIVIL ENGINEERING B.S.

## Program Requirements

< Back to Department ([https://catalog.uaf.edu/academic-departments/civil-geological-environmental-engineering/](https://catalog.uaf.edu/academic-departments/civil-geological-environmental-engineering/))

## Minimum Requirements for Civil Engineering B.S. Degree: 126 credits

Students must earn a C- grade or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>General University Requirements</strong></td>
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<td>Complete the general university requirements. (<a href="https://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext">https://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext</a>)</td>
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<td><strong>General Education Requirements</strong></td>
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<td>As part of the general education requirements, complete the following:</td>
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<tr>
<td>CHEM F105X</td>
<td>General Chemistry I</td>
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<tr>
<td>CHEM F106X</td>
<td>General Chemistry II</td>
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</tr>
<tr>
<td>MATH F251X</td>
<td>Calculus I</td>
<td></td>
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<td><strong>B.S. Degree Requirements</strong></td>
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<td>Complete the B.S. degree requirements. (<a href="https://catalog.uaf.edu/bachelors/#bachelorofsciencetext">https://catalog.uaf.edu/bachelors/#bachelorofsciencetext</a>)</td>
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<tr>
<td>MATH F252X</td>
<td>Calculus II</td>
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<tr>
<td>PHYS F211X</td>
<td>General Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS F212X</td>
<td>General Physics II</td>
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<td><strong>Civil Engineering Program Requirements</strong></td>
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<tr>
<td>CE F112</td>
<td>Elementary Surveying</td>
<td>2-3</td>
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<tr>
<td>or MIN F202</td>
<td>Surveying and CAD for Engineers</td>
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<tr>
<td>CE F302</td>
<td>Fundamentals of Transportation Engineering</td>
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<tr>
<td>CE/GE F326</td>
<td>Introduction to Geotechnical</td>
<td>4</td>
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<tr>
<td></td>
<td>Engineering and Foundations</td>
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<tr>
<td>CE F331</td>
<td>Structural Analysis</td>
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<tr>
<td>CE F334</td>
<td>Properties of Materials</td>
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<tr>
<td>CE F341</td>
<td>Introduction to Environmental Engineering</td>
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<td>CE F344</td>
<td>Water Resources Engineering</td>
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<td>CE F432</td>
<td>Steel Design</td>
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<td>CE F438</td>
<td>Design of Engineered Systems ¹</td>
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<td>DRT F210</td>
<td>Intermediate CAD</td>
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<tr>
<td>ES F100X</td>
<td>Engineering Alaska - An Introduction to</td>
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<td>ES F100L</td>
<td>Makerspace Alaska - A Laboratory Introduction to</td>
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<td>ES F201</td>
<td>Computer Techniques</td>
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<td>ES F208</td>
<td>Mechanics</td>
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<td>ES F301</td>
<td>Engineering Analysis</td>
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<tr>
<td>ES F331</td>
<td>Mechanics of Materials</td>
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### Technical Electives ²

- Complete 3 credits from the fields of environmental, construction or transportation engineering.
- Complete 6 credits from the following areas of emphasis, or as approved by an advisor:

#### Arctic Emphasis
- CE F401 Arctic Engineering
- CE F424 Permafrost Engineering
- ME F441 Heat and Mass Transfer

#### Construction Emphasis
- CE F451 Construction Cost Estimating and Bid Preparation

#### Environmental Emphasis
- CE F442 Water and Wastewater Treatment Design
- CE F443 Air Pollution Management
- ENVE F446 Biological Unit Processes

#### Geotechnical Emphasis
- CE F422 Foundation Engineering
- GE F440 Slope Stability
- GE F441 Geohazard Analysis

#### Structural Emphasis
- CE F433 Reinforced Concrete Design
- CE F434 Timber Design

#### Transportation Emphasis
- CE F405 Design of Highways and Streets
- CE F408 Transportation Safety Analysis

#### Water Resources Emphasis
- CE/GE F420 Groundwater Engineering
- CE F445 Hydrologic Analysis and Design

### Fundamentals of Engineering (FE) Examination

Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

| Total Credits | 126-131 |

¹ Fulfills the baccalaureate capstone requirement.

² Up to two graduate-level courses may be used towards graduation. Graduate-level courses must be approved by student's advisor, and the student must be within two semesters of graduation and have at least a 3.0 GPA to take graduate-level courses.

**Note:** The ability to use computers for normal class work is expected in all engineering classes above the F100 level.