

# CIVIL ENGINEERING - MINOR

The undergraduate minor in civil engineering serves CU Boulder students interested in an introductory exposure to the broad discipline of civil engineering. The minor is intended to expose students to five sub-disciplines of civil engineering.

## Requirements

### Admission Requirements

A cumulative GPA of 2.750 or higher is required to be admitted to the minor.

The minor is not open to students pursuing the Bachelor of Science in civil engineering or the Bachelor of Science in Integrated Design Engineering with a civil engineering disciplinary emphasis.

### Prerequisites

The following prerequisite courses are required, with a grade of C- or higher in each. A student may be accepted into the minor with no more than two of these courses as deficiencies. All deficiencies must be completed before the minor is awarded.

- Calculus 1 (APPM 1350 or MATH 1300 or APPM 1345)
- Calculus 2 (APPM 1360 or MATH 2300)
- Calculus 3 (APPM 2350 or MATH 2400)
- Differential Equations and Linear Algebra (APPM 2360, or MATH 2130 and MATH 3430)
- Two semesters of calculus-based physics (PHYS 1110 or PHYS 1115, and PHYS 1120 or PHYS 1125)
- Statics (CVEN 2121, ASEN 2701, GEEN 2851 or MCEN 2023)
- Fluid Mechanics (CVEN 3313, AREN 2120, MCEN 3021, or GEEN 3853)
- Mechanics of Materials (CVEN 3161 or MCEN 2063)

## Program Requirements

### Grade Requirements

A cumulative GPA of 2.000 is required in the courses used to satisfy the minor requirements, with no individual grade lower than C-.

### Residency

The minor requires 18 credit hours, at least nine of which must be CVEN courses completed on the CU Boulder campus. The minor is composed of five required courses plus one additional proficiency or advanced course.

### Course Requirements

Code	Title	Credit Hours
<b>Required Core Courses</b>		
CVEN 3246	Introduction to Construction	3
CVEN 3323	Hydraulic Engineering	3
CVEN 3414	Fundamentals of Environmental Engineering	3
CVEN 3525	Structural Analysis	3
CVEN 3708	Geotechnical Engineering 1	3
<b>Additional Courses</b>		
One additional proficiency or advanced course in one of the following sub-disciplines:		3
<i>Construction Engineering and Management</i>		
CVEN 3256	Construction Equipment and Methods	

AREN 4506	Pre-construction Estimating and Scheduling
<i>Environmental Engineering</i>	
CVEN 3424	Water and Wastewater Treatment
CVEN 4404	Water Chemistry
CVEN 3434	Introduction to Applied Ecology
CVEN 4474	Hazardous and Industrial Waste Management
CVEN 4484	Introduction to Environmental Microbiology
<i>Geotechnical Engineering</i>	
CVEN 3718	Geotechnical Engineering 2
<i>Structural Engineering</i>	
CVEN 4545	Steel Design
CVEN 4555	Reinforced Concrete Design
<i>Water Resource Engineering</i>	
CVEN 4333	Engineering Hydrology
CVEN 4353	Groundwater Engineering
<i>Civil Systems</i>	
CVEN 4147	Civil Engineering Systems
<b>Total Credit Hours</b>	<b>18</b>