

CIVIL ENGINEERING, BS

Introduction

Please click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-engineering-design-computing/civil-engineering/>) to see Civil Engineering department information.

The objectives of the bachelor of science in civil engineering program are to produce graduates who:

- are able to perform the technical analyses and design tasks of entry-level civil engineers
- can successfully work toward professional engineering licensure
- communicate effectively, both orally and in writing
- understand the importance of leadership skills, team building and ethical practice
- value lifelong learning and improvement through graduate degrees or professional study
- appreciate the importance of community involvement and social contribution civil engineers are dedicated to improving our living environment

Civil engineering offers an interesting and challenging career in the design, construction, and maintenance of buildings and urban infrastructure; in transportation systems, including highways, airports, rapid transit lines, railroads, and harbor facilities; in the development of water resources, including reservoirs for storage, canals for irrigation, dams for power generation, stormwater management for drainage, groundwater recharge for contamination prevention, wastewater treatment for environmental protection, and water purification for drinking purposes; in the construction industry; including foundations, bridges, concrete and steel structures, in problems concerned with environmental preservation; and in the sustainable development of cities. In preparing for work in such a broad field, the civil engineering student studies mathematics, basic science, communication, social science and humanities, engineering science and civil engineering design. CU Denver's civil engineering graduates usually find their first professional employment with consulting engineering firms, government agencies and various industries.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/records-registration/registration/declare-change-major-minor/>) to go to information about declaring a major.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements (<http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation/general-graduation-requirements/>)
- CU Denver Core Curriculum (<http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation-undergraduate-core-requirements/>)
- College of Engineering, Design and Computing Graduation Requirements (<http://catalog.ucdenver.edu/cu-denver/>)

[undergraduate/schools-colleges-departments/college-engineering-design-computing/#graduationrequirements](http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-engineering-design-computing/#graduationrequirements)text)

- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/academic-policies-procedures/>) for information about Academic Policies

Program Requirements

1. Students must maintain a minimum 2.0 GPA in all courses applying to major requirements.
2. Students must maintain a minimum 2.0 GPA in all CVEN courses attempted.

Code	Title	Hours
Civil Engineering		
CVEN 1025	Civil Engineering Graphics and Computer Aided Design	3
CVEN 1067	Introduction to Civil Engineering	1
ENGR 1100	Fundamentals of Computational Innovation	3
or IWKS 2300	Fundamentals of Computational Innovation	
ENGR 1200	Fundamentals of Engineering Design Innovation	3
CEMT 2100	Construction Management Fundamentals	3
CVEN 2121	Analytical Mechanics I	3
CVEN 2214	Surveying for Engineering	1-2
or CVEN 2212	Surveying for Construction and Engineering	
CVEN 3111	Analytical Mechanics II	3
CVEN 3121	Mechanics of Materials	3
CVEN 3141	Introduction to Structural Materials	2
CVEN 3200	Computational Methods for Civil Engineers	3
CVEN 3313	Fluid Mechanics	3
CVEN 3323	Hydrosystems Engineering	3
CVEN 3401	Introduction to Environmental Engineering	3
CVEN 3505	Structural Analysis	3
CVEN 3602	Transportation Engineering	3
CVEN 3718	Geotechnical Engineering I	3
CVEN 4000	Senior Seminar	0
CVEN 4067	Senior Design Projects	3
Design Electives		
Select four of the following:		12
CVEN 4426	Pipe Network and Sewer Design	
CVEN 4427	Storm Water System Design	
CVEN 4565	Timber Structure Design	
CVEN 4575	Structural Steel Design	
CVEN 4585	Reinforced Concrete Design	
CVEN 4590	Design of Prestressed Concrete	
CVEN 4591	Design of Composite Structures	
CVEN 4602	Highway Engineering	
CVEN 4738	Intermediate Foundation Engineering	
CVEN 5540	Masonry Design	
CVEN 5550	Highway Bridge Design	
CVEN 5575	Advanced Topics in Structural Steel Design	
CVEN 5585	Advanced Topics in Reinforced Concrete	
CVEN 5682	Pavement Design	
Mathematics		
MATH 1401	Calculus I	4

MATH 2411	Calculus II	4
MATH 2421	Calculus III	4
MATH 3191 & MATH 3200	Applied Linear Algebra and Elementary Differential Equations	4-6
	or MATH 3195 Linear Algebra and Differential Equations	
CVEN 3611	Engineering Statistics	3
	or MATH 3800 Probability and Statistics for Engineers	
Chemistry		
ENGR 1130	Chemistry for Engineers	5
Physics		
PHYS 2311	General Physics I: Calculus-Based	4
PHYS 2321	Intro Experimental Phys Lab I	1
PHYS 2331	General Physics II: Calculus-Based	4
Other Courses		
Select one of the following:		3
CVEN 4025	Autocad Civil 3d & Advanced Civil Engineering Graphics	
CVEN 4077	Engineering Economy	
CVEN 4087	Engineering Contracts	
Electives		
Select three elective courses ¹		9
CU Denver Core Curriculum		
Select 24 Credits (http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation-undergraduate-core-requirements/cu-denver-core-curriculum/)		24
Total Hours		130-133

¹ Any 4000-level or higher CVEN or CEMT courses. Other math, science or engineering courses may be allowed with advisor approval.

Note

Up to two 5000-level CVEN courses taken at CU Denver for the bachelor of science in civil engineering can be applied to a CU Denver civil engineering master's degree if relevant to the student's master's degree emphasis as determined by the student's master's degree advisor.

To review the Degree Map for this program, please visit our website (<https://www.ucdenver.edu/student/advising/undergraduate/degree-maps/cedc/>).