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/#graduationrequirementstext)
- 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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 1025</td>
<td>Civil Engineering Graphics and Computer Aided Design</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 1067</td>
<td>Introduction to Civil Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ENGR 1100</td>
<td>Fundamentals of Computational Innovation</td>
<td>3</td>
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<tr>
<td>ENGR 2214</td>
<td>Surveying for Engineering</td>
<td>1-2</td>
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<tr>
<td>CVEN 1200</td>
<td>Fundamentals of Engineering Design Innovation</td>
<td>3</td>
</tr>
<tr>
<td>CEMT 2100</td>
<td>Construction Management Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 2121</td>
<td>Analytical Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 3111</td>
<td>Analytical Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 3121</td>
<td>Mechanics of Materials</td>
<td>3</td>
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<tr>
<td>CVEN 3141</td>
<td>Introduction to Structural Materials</td>
<td>2</td>
</tr>
<tr>
<td>CVEN 3200</td>
<td>Computational Methods for Civil Engineers</td>
<td>3</td>
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<tr>
<td>CVEN 3313</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 3323</td>
<td>Hydrosystems Engineering</td>
<td>3</td>
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<tr>
<td>CVEN 3401</td>
<td>Introduction to Environmental Engineering</td>
<td>3</td>
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<tr>
<td>CVEN 3505</td>
<td>Structural Analysis</td>
<td>3</td>
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<td>CVEN 3602</td>
<td>Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 3718</td>
<td>Geotechnical Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>CVEN 4000</td>
<td>Senior Seminar</td>
<td>0</td>
</tr>
<tr>
<td>CVEN 4067</td>
<td>Senior Design Projects</td>
<td>3</td>
</tr>
</tbody>
</table>

Design Electives
Select four of the following:

- CVEN 4426 | Pipe Network and Sewer Design | 3     |
- CVEN 4427 | Storm Water System Design | 3     |
- CVEN 4565 | Timber Structure Design | 3     |
- CVEN 4575 | Structural Steel Design | 3     |
- CVEN 4585 | Reinforced Concrete Design | 3     |
- CVEN 4590 | Design of Prestressed Concrete | 3     |
- CVEN 4591 | Design of Composite Structures | 3     |
- CVEN 4602 | Highway Engineering | 3     |
- CVEN 4738 | Intermediate Foundation Engineering | 3     |
- CVEN 5540 | Masonry Design | 3     |
- CVEN 5550 | Highway Bridge Design | 3     |
- CVEN 5575 | Advanced Topics in Structural Steel Design | 3     |
- CVEN 5585 | Advanced Topics in Reinforced Concrete | 3     |
- CVEN 5682 | Pavement Design | 3     |

Mathematics
- MATH 1401 | Calculus I | 4     |

Policies
Please click here (http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation-undergraduate-core-requirements/) to see Civil Engineering department information.
Civil Engineering, BS

MATH 2411 Calculus II  4
MATH 2421 Calculus III  4
MATH 3191 Applied Linear Algebra  4-6
& MATH 3200 and Elementary Differential Equations
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  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 students 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/).