

FREQUENTLY ASKED QUESTIONS: Bachelor of Science in Construction Management and Bachelor of Science in Construction Engineering and Management

What type of job can I get with a bachelor's degree in construction management?

- Project and field engineers for construction companies
- Superintendents (run construction sites)
- Estimators (determining construction cost)
- VDC and BIM (use software systems to model and manage construction projects)
- Planners and schedulers
- Project managers (oversee entire projects)

Where do bachelor of science in construction management graduates work?

- General contractors and specialty contractors
- Owners and developers, construction management firms, engineering consulting firms
- Other construction related organizations – supply, manufacturing, insurance agencies, law firms
- Government agencies – city, county, transportation, education, military

What type of job can I get with a bachelor's degree in construction engineering and management?

Construction engineering and management professionals have the option of either working in an office setting, out in the field, or both. Some construction engineering and management professionals focus on the design aspect, while others focus on the actual build phase of each project. There are many career paths to choose from with a degree in construction engineering and management:

- General contractors (bridges, roads, buildings, healthcare, data centers, sports facilities)
- Municipalities, transportation departments, military and other government agencies
- Owners and developers, construction management firms
- Mechanical/electrical contractors, and other specialty contractors
- Renewable energies
- Consulting and design firms
- Oil and gas industry
- Other construction related organizations – supply, manufacturing, insurance agencies, law firms

Most construction engineering and management bachelor of science graduates will be eligible to take the Fundamentals of Engineering (FE) exam. If you choose the Computer Science specialty area, you will not be eligible to take the FE. As your career progresses, you may have the opportunity to take the PE exam to become a licensed Professional Engineer.

What is the difference between a bachelor's degree in construction management and construction engineering and management?

A bachelor of science in construction management has more management courses and requires fewer engineering and math courses. It is the most common degree in the United States for working in the construction industry at a management level. A bachelor of science in construction engineering management (or construction engineering) is an engineering degree with more engineering and math courses than the bachelor of science in construction management. This degree is new within the engineering disciplines and is sought after by the entire construction industry, government agencies and consulting firms.

What is the difference between a bachelor of science in business/management from the Business School and the bachelor of science in construction management?

The bachelor of science in construction management is based in the College of Engineering, Design and Computing. The degree requires a minimum of five courses from the Business School to provide a solid foundation in business and management. Unlike most other bachelor's degrees in construction management in Colorado, the CU Denver bachelor of science in construction management has a strong engineering and design basis. For example, students working on a bachelor of science in construction management are required to take a freshman-level introduction to the process of design course (ENGR 1208).

What is the difference between a bachelor's degree in engineering (like civil engineering) and construction engineering and management?

Bachelor of science degrees in civil, mechanical and electrical (for example) engineering are traditional engineering degrees that have prescribed requirements in math, science and engineering design that come from the Accreditation Board for Engineering and Technology (ABET) accreditation requirements. The bachelor of science in construction engineering and management (or construction engineering) is a newer degree that has different ABET accreditation requirements. The ABET requirements include more business, management and construction topics.

Are the two new degrees accredited?

The bachelor of science in construction management and bachelor of science in construction engineering and management were developed and are being launched to meet Accreditation Board for Engineering and Technology (ABET) accreditation. The bachelor of science in construction management will be accredited under the Applied and Natural Science Accreditation Commission and the BS in construction engineering and management will be accredited under the Engineering Accreditation Commission. The accreditation cannot be awarded until there is at least one graduate in the degree program. The construction engineering and management program is planning to apply for accreditation in 2023 and hopes to be awarded accreditation for both programs summer 2024. If so, then all (past and future) graduates will be awarded accredited degrees.

What can be used for a technical elective?

Courses in math, science, architecture, business, engineering, construction and technical communication.

CEMT 1000 – Intro to construction management. Required for freshman interested in Construction. Optional for sophomores and juniors who transfer in. Optional if student has taken an Intro to a degree class already. For example, Intro to Civil Engineering.

CEMT 4939 Internship – additional information will be available on the bachelor of science in construction management and bachelor of science in construction engineering management webpages

Bachelor of science in construction management details

Construction management business courses – recommended choices:

- Business Fundamentals Minor
 - BMIN 3001 Fundamentals of Management and Marketing,
 - BMIN 3002 Fundamentals of Accounting and Finance
 - BMIN 3004 Principles of Strategic Mgmt
- Entrepreneurship Certificate
 - ENTP 3200 Essentials in Entrepreneurship
 - ENTP 3230 Small Business Accounting and Finance
 - ENTP 3299 Business Model Development & Planning
 - Could earn a minor in Entrepreneurship by taking 2 additional ENTP courses as technical electives
- Any three of the following courses
 - ACCT 2200 Financial Accounting & Financial Statement Analysis,
 - BANA 3000 Operations Mgmt
 - MGMT 3000 Managing Individuals and Teams
 - MKTG 3000 Principles of Marketing
 - MKTG 4700 Personal Selling and Sales Management
- Other courses with advisor approval

Bachelor of science in construction engineering and management details

Engineering Specialty. As part of the program, students will choose an engineering specialty from Civil, Computer Science, Electrical, or Mechanical Engineering.

Civil Engineering: must take at least 1 design course. Some suggested specialty course choices:

- Highway and Street Design (15 credits)
 - CVEN 3602 Transportation Engineering
 - CVEN 4025 Autocad Civil 3d

- CVEN 4602 Highway Design
- CVEN 4xxx Urban Street Design
- CVEN 4622 Highway Capacity Analysis
- Structural Design (14 credits)
 - CVEN 2121 Analytical Mechanics I (requires MATH 2411 and PHYS 2311)
 - CVEN 3121 Mechanics of Materials
 - CVEN 3141 Structural Materials
 - CVEN 3505 Structural Analysis
 - Structural Design course (CVEN 4565 Timber, CVEN 4575 Steel, or CVEN 4585 Concrete)
- Stormwater and Sewer Design (15 credits)
 - CVEN 2121 Analytical Mechanics I (requires Calculus II and Physics I)
 - CVEN 3313 Fluid Mechanics
 - CVEN 3323 Hydrosystems
 - CVEN 4426 Pipe Network and Sewer Design
 - CVEN 4427 Stormwater Design
- Other courses with advisor approval

Mechanical Engineering: must take at least 1 design course. Some suggested specialty course choices:

- Thermal Systems Design (21 credits)
 - MECH 2023 Statics (requires PHYS 2311)
 - MECH 2033 Dynamics
 - MECH 3010 Num Methods & Programming (requires MATH 2411 and MATH 3195)
 - MECH 3012 Thermodynamics
 - MECH 3021 Fluid Mechanics (requires MATH 2421)
 - MECH 3042 Heat Transfer
 - MECH 4142 Thermal Systems Design
- Other courses with advisor approval

Electrical Engineering: must take at least 1 design course. Some suggested specialty course choices:

- Power Systems Analysis
 - ELEC 2132 Circuit Analysis I (requires PHYS 2311)
 - ELEC 2142 Circuit Analysis II (requires PHYS 2331 and MATH 2421)
 - ELEC 3164 Energy Conversion
 - ELEC 4184 Power Systems Analysis
 - Additional 3 credit ELEC course
- Other courses with advisor approval

Computer Science: No design course required. Example course choices:

- CSCI 1410/1411 Fundamentals of Computing
- CSCI 2421 Data Structures and Program Design
- 2 additional CSCI courses such as:
 - CSCI 2930 Practical System Administration
 - CSCI 3287 Database System Concepts

- CSCI 2930 Practical Systems Administration
- CSCI 2940 NAND to Tetris: Foundations of Computer Systems
- CSCI 2942 IoT: The Internet of Things.

Additional Math and Science. Specific math and science courses are required as prerequisites for some engineering specialty courses. When specifics are not required, consider courses in geology, environmental science, biology, chemistry, and physics.

Information on the Fundamentals of Engineering (FE) exam

The FE exam is offered for seven disciplines – chemical, civil, electrical and computer, environmental, industrial and systems, mechanical, and other. The civil exam is the only FE exam that includes any specific construction related questions. Most people must study and take a prep course before they are able to pass the FE. See the following link for additional information.

<https://ncees.org/engineering/fe/>