

Civil Engineering B.S.C.E

Department of Civil Engineering: 221 Swenson Civil Engineering Building
civileng@d.umn.edu, 218-726-6444

Civil Engineering B.S. Program Requirements:

Required credits to graduate: 131-132

Required credits within this major: 122-123

No minor is required with this major.

Admission Requirements:

Freshman, sophomores, and transfer students may declare a CE major and be admitted to lower division status. Admission to the upper division B.S.C.E. program is competitive and based on performance in lower division courses and space availability. To be considered, students must complete the CE Application to upper division. The following requirements must be met:

1. Completion of the following 11 classes with a C- or better in each class (total 36 cr).
2. A cumulative GPA of 2.5 or better in the 11 required classes

Chemistry

CHEM 1153 - General Chemistry I (4.0 cr)

CHEM 1154 - General Chemistry Lab I (1.0 cr)

or CHEM 1161 - Honors: General Chemistry I (5.0 cr)

Civil Engineering

CE 1025 - Introduction to Civil Engineering (1.0 cr)

CE 2017 - Engineering Mechanics and Statics of Materials (5.0 cr)

Computer Science

CS 1411 - Introduction to Programming: Matlab (4.0 cr) *or*

CS 1121 - Introduction to Programming: Visual BASIC.NET (3.0 cr)

Writing

WRIT 1120 - College Writing (3.0 cr)

Math

MATH 1296 - Calculus I (5.0 cr)

or MATH 1596 - Honors: Calculus I (5.0 cr)

MATH 1297 - Calculus II (5.0 cr)

or MATH 1597 - Honors: Calculus II (5.0 cr)

MATH 3280 - Differential Equations w/Linear Algebra (4.0 cr)

Physics

PHYS 2013 - General Physics I (4.0 cr)

or PHYS 2017 - Honors: General Physics I (4.0 cr)

PHYS 2014 - General Physics Lab I (1.0 cr)

Program Requirements: C- or better is required in all Civil Engineering courses.

B.S.C.E. Major Requirements (44 cr)

CE 2020 - Computational Tools for Civil Engineers (4.0 cr)

CE 3015 - CAD & Engineering Drawing (3.0 cr)

CE 3016 - Surveying (2.0 cr)

CE 3025 - Environmental Engineering (4.0 cr)

CE 3026 - Project Management (3.0 cr)

CE 3027 - Infrastructure Materials (4.0 cr)

CE 3115 - Structural Analysis (3.0 cr)

CE 3221 - Fluid Mechanics (3.0 cr)

CE 3225 - Hydraulics and Hydrology (3.0 cr)

CE 3316 - Transportation Engineering (4.0 cr)

CE 3426 - Soil Mechanics (4.0 cr)

CE 4126 - Concrete Design (3.0 cr)

CE 4255 - Senior Design (4.0 cr)

Additional B.S.C.E. Requirements (21 cr)

COMM 1112 - Public Speaking (3.0 cr)

MATH 3298 - Calculus III (4.0 cr)

STAT 3411 - Engineering Statistics (3.0 cr)

PHYS 2015 - General Physics II (4.0 cr)

PHYS 2016 - General Physics Lab II (1.0 cr)

WRIT 31xx - Adv Writ (3 cr)

ECON 1022 - Principles of Economics: Macro (3.0 cr)

or ECON 1023 - Principles of Economics: Micro (3.0 cr)

Civil Engineering Elective (15 cr)

Any CE 4xxx or CE 5xxx course counts towards Civil Engineering Electives. At least two courses (6 credits) must be taken from the same area. Faculty advisors can help with course selection.

Structures

Environmental and Water Resources

Transportation Engineering

Geotechnical Engineering

Technical Elective (6 cr)

An additional 6 credits of general technical electives must be taken and can be chosen from any course in the Swenson College of Science and Engineering at 2xxx or above (including CE courses not already counted toward the degree). CHEM 1152 or CHEM 1155, as well as GIS 3563, can also be used to fulfill a portion of the general technical elective requirement.

Civil Engineering Sample Plan

The sample plan below shows you **one** of several possible ways to complete this degree. Your academic plan may look different if you have already fulfilled some requirements, if you have multiple course options to choose from in your major, or if courses do not fit your schedule in a given term. Work with your academic adviser to ensure that you are on track to graduate on time.

Complete Program requirement information can be found within the UMD Catalog: <http://www.d.umn.edu/catalogs/current/>

Year 1 Fall Semester: 14 cr

CE 1025 - Introduction to Civil Engineering 1.0 cr
MATH 1296 - Calculus I 5.0 cr: LOGIC & QR
CHEM 1153 - General Chemistry I 4.0 cr: NAT SCI
CHEM 1154 - General Chemistry Lab I 1.0 cr: NAT SCI
Liberal Education Course 3.0 cr

Year 1 Spring Semester: 16 cr

WRIT 1120 - College Writing 3.0 cr: WRITING & INFO LITERACY
COMM 1112 - Public Speaking 3.0 cr: COMM & LAN
MATH 1297 - Calculus II 5.0 cr: LOGIC & QR
PHYS 2013 - General Physics I 4.0 cr: NAT SCI
PHYS 2014 - General Physics Lab I 1.0 cr: NAT SCI

Year 2 Fall Semester: 16 cr

CE 2017 - Engineering Mechanics (Statics and Strength) 5.0 cr
MATH 3280 - Differential Equations w/Linear Algebra 4.0 cr
STAT 3411 - Engineering Statistics 3.0 cr
CS 1411 - Intro to Programming in Matlab 4.0 cr

Year 2 Spring Semester: 16 cr

MATH 3298 - Calculus III 4.0 cr
PHYS 2015 - General Physics II 4.0 cr
PHYS 2016 - General Physics Lab II 1.0 cr
CE 2020 - Computational Tools 4.0 cr:
CE 3221 - Fluid Mechanics 3.0 cr

Year 3 Fall Semester: 17 cr

CE 3015 - CAD & Engineering Drawing 3.0 cr
CE 3027 - Infrastructure Materials 4.0 cr
CE 3115 - Structural Analysis 3.0 cr
CE 3316 - Transportation Engineering 4.0 cr
ECON 1022 or 1023 - Macro or Micro Econ 3.0 cr: SOC SCI

Year 3 Spring Semester: 17 cr

CE 3025 - Environmental Engineering 4.0 cr
CE 3026 - Project Management 3.0 cr
CE 3225 - Hydraulics and Hydrology 3.0 cr
CE 3426 - Soil Mechanics 4.0 cr
Liberal Education Course 3.0 cr

Year 3 Summer Semester: 5.0 cr

CE 3016 - Surveying 2.0 cr
WRIT 31xx - Advanced Writing 3.0 cr

Year 4 Fall Semester: 15 cr

CE 4126 - Concrete Design 3.0 cr
CE 4xxx or 5xxx - Civil Engineering Elective 3.0 cr
CE 4xxx or 5xxx - Civil Engineering Elective 3.0 cr
Technical Elective 3.0 cr
Liberal Education Course 3.0 cr

Year 4 Spring Semester: 16 cr

CE 4255 - Senior Design 4.0 cr
CE 4xxx or 5xxx - Civil Engineering Elective 3.0 cr
CE 4xxx or 5xxx - Civil Engineering Elective 3.0 cr
Technical Elective 3.0 cr
Liberal Education Course 3.0 cr

Effective for Fall 2017 (updated 03.18.19)