



Twin Cities Campus

Civil Engineering B.C.E.

CSENG Civil, Envrn & Geo-Eng (CEGE)

College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Spring 2012
- Required credits to graduate with this degree: 128
- Required credits within the major: 64
- This program requires summer terms.
- Degree: Bachelor of Civil Engineering

Civil engineering deals with the science and art of engineering applied to solving problems and designing systems related to infrastructure and the environment. Principal fields within civil engineering are structural engineering, environmental engineering, water resources engineering, transportation engineering, and geotechnical engineering. The upper division civil engineering program requires students to take introductory courses in all of the above areas. In addition, students may emphasize a special interest in one of the areas by selecting appropriate technical electives in consultation with their adviser.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 10 courses before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major

It is recommended that students take GEO 1001 and CE 1101, but these courses are not required to be admitted to the program.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

Required prerequisites

Mathematics

Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.

[MATH 1271](#) - Calculus I [MATH] (4.0 cr)

or [MATH 1371](#) - CSE Calculus I [MATH] (4.0 cr)

[MATH 1272](#) - Calculus II (4.0 cr)

or [MATH 1372](#) - CSE Calculus II (4.0 cr)

[MATH 2243](#) - Linear Algebra and Differential Equations (4.0 cr)

or [MATH 2373](#) - CSE Linear Algebra and Differential Equations (4.0 cr)

[MATH 2263](#) - Multivariable Calculus (4.0 cr)

or [MATH 2374](#) - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Physical Science and Mechanics

[AEM 2011](#) - Statics (3.0 cr)

[AEM 3031](#) - Deformable Body Mechanics (3.0 cr)

[CHEM 1021](#) *{Inactive}* [PHYS] (4.0 cr)

or [CHEM 1031H](#) *{Inactive}* [PHYS] (4.0 cr)

[CHEM 1022](#) *{Inactive}* [PHYS] (4.0 cr)

or [CHEM 1032H](#) *{Inactive}* [PHYS] (4.0 cr)

[PHYS 1301W](#) - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

or [PHYS 1401V](#) - Honors Physics I [PHYS, WI] (4.0 cr)

[PHYS 1302W](#) - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

or [PHYS 1402V](#) - Honors Physics II [PHYS, WI] (4.0 cr)

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).



Program Requirements

Major Courses

CEGE 3201 - Transportation Engineering [TS] (3.0 cr)
CEGE 3301 - Soil Mechanics I (3.0 cr)
CEGE 3401 - Linear Structural Analysis (3.0 cr)
CEGE 3402 - Civil Engineering Materials (3.0 cr)
CEGE 3501 - Introduction to Environmental Engineering [ENV] (3.0 cr)
CEGE 3502 - Fluid Mechanics (4.0 cr)
CEGE 4102W - Capstone Design for Civil Engineering [WI] (4.0 cr)
CEGE 4301 - Soil Mechanics II (3.0 cr)
CEGE 4401 - Steel and Reinforced Concrete Design (4.0 cr)
CEGE 4501 - Hydrologic Design (4.0 cr)
CEGE 4502 - Water and Wastewater Treatment (3.0 cr)
AEM 2012 - Dynamics (3.0 cr)
or CHEM 2301 - Organic Chemistry I (3.0 cr)
or EE 2001 *{Inactive}* (3.0 cr)
or MATS 2001 - Introduction to the Science of Engineering Materials (3.0 cr)
or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
or ME 3331 - Thermodynamics (3.0 cr)

Computer Applications

CEGE 3101 - Computer Applications I (3.0 cr)

Statistics

STAT 3021 may be substituted for CE 3102 with approval of the director of undergraduate studies.

CEGE 3102 - Uncertainty and Decision Analysis (3.0 cr)
or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

Civil Engineering Electives

Students must take 10 credits of 4xxx or higher electives offered by the civil engineering department.

Take exactly 10 credit(s) from the following:

- CE 4xxx
- CE 5xxx

Technical Electives

Students must take an additional 11 credits of technical electives. All courses at 4xxx or higher from an engineering department (including Civil Engineering) are acceptable as technical electives. Additional courses are acceptable as technical electives upon approval of an adviser. Consult your adviser for assistance in selecting elective courses.

Take 11 or more credit(s) from the following:

- EE 4xxx
- ME 4xxx
- CSCI 4xxx
- BBE 4xxx
- GEOE 4xxx
- CHEN 4xxx
- BMEN 4xxx
- CE 3xxx
- CE 4xxx
- CE 5xxx
- ME 5xxx
- EE 5xxx
- CSCI 5xxx
- CHEN 5xxx
- BBE 5xxx
- BMEN 5xxx
- GEOE 5xxx

Program Sub-plans

A sub-plan is not required for this program.

Honors UHP

This is an honors sub-plan.



Students admitted to the University Honors Program (UHP) must fulfill UHP requirements in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:

http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.