Minor in Civil Engineering

The Minor in Civil Engineering is designed to provide undergraduate students pursuing majors other than Civil Engineering, with exposure to foundational concepts relevant to the profession. It also provides these students with the opportunity to take an upper-level design class related to the discipline. Additionally, completion of the minor provides sufficient technical background to pursue a MS degree in Civil Engineering or in Construction Engineering and Management. Students pursuing a Minor in Civil Engineering must choose from one of three tracks:

- Structural, Geotechnical, and Materials Engineering
- Construction Engineering and Management
- Mobility Systems Engineering

Each track has its own set of prerequisites, core courses, and electives.

Eligibility

Any student pursuing an undergraduate degree at the University of Michigan, excluding the BSE degree in Civil Engineering, may pursue a minor in Civil Engineering. To be eligible, a student must be in good academic standing (with a GPA of 2.0 or higher). Additionally, the courses for each track have prerequisites, which the student must have completed and received a grade of C or better.

Minimum Program Requirements

All courses must be completed with a grade of C- or better, and the overall GPA for the courses pursued for the minor must be 2.0 or higher. Course prerequisites are listed in Table 1.

Track 1: Structural, Geotechnical, and Materials Engineering

Prerequisites

- Math 115: Calculus 1 or equivalent
- Math 116: Calculus 2 or equivalent
- CEE 211: Statics and Dynamics or equivalent[1]
- CEE 212: Solid and Structural Mechanics or equivalent[1]

Required Core Courses (12cr)

- CEE 312: Structural Engineering (4cr)
- CEE 345: Geotechnical Engineering (4cr)
- CEE 351: Civil Engineering Materials (4cr)

Elective Courses (at least 3 cr)

[1] Note that course sequences in other engineering majors which cover the topics of statics, dynamics and strength of materials (e.g., ME 211 - ME 240) may be substituted for the sequence CEE 211 - CEE 212.

- CEE 413: Design of Metal Structures (3cr)
- CEE 415: Design of Reinforced Concrete Structures (3cr)
- CEE 545: Foundation Engineering (3cr)
- CEE 546: Slopes, Dams, and Retaining Structures (3cr)
- CEE 547: Soils Engineering and Pavement Systems (3cr)

Track 2: Construction Engineering and Management

Prerequisites

- Math 115: Calculus 1 or equivalent
- Math 116: Calculus 2 or equivalent
- CEE 211: Statics and Dynamics or equivalent[1]
- CEE 212: Solid and Structural Mechanics or equivalent[1]

Required Core Courses (12cr)

- CEE 331: Construction Management (4cr)
- CEE 351: Civil Engineering Materials (4cr)
- CEE 312: Structural Engineering (4cr) -OR- CEE 345: Geotechnical Engineering (4cr)

Elective Courses (at least 3 cr)

- CEE 435: Building Information Modeling (3cr)
- CEE 534: Construction Engineering, Equipment, and Methods (3cr)

Track 3: Mobility Systems Engineering

Prerequisites:

- MATH 215: Multivariable and Vector Calculus or equivalent
- MATH 216: Introduction to Differential Equations or equivalent
- Physics 240: General Physics 2 or equivalent

Required Core Courses (16cr)

- CEE 373 -OR- Math 425 -OR- STAT 425: Statistical Methods (3cr)
- CEE 375: Sensors, Circuits, and Signal Processing (3cr)
- CEE 450: Introduction to Transportation Engineering (4cr)
- CEE 551: Traffic Science (3cr)
- CEE 552: Travel Behavior Analysis and Forecasting (3cr)

Table 1: Course Prerequisites

Core Course	Prerequisites	Semester Offered
CEE 312	CEE 212 or equivalent	F
CEE 331	Junior standing	W
CEE 345	Physics 140	F, W
CEE 351	CEE 212 or equivalent	F, W
CEE 373	MATH 115, MATH 116	F
CEE 413	CEE 312	F
CEE 415	CEE 312	W
CEE 435	CEE 331	F
CEE 450	MATH 115, Physics 240	W
CEE 532	CEE 331	W
CEE 534	Junior standing	W
CEE 545	CEE 345	F
CEE 546	CEE 345	W
CEE 547	CEE 345	F
CEE 551	CEE 450	F
CEE 552	N/A	W