

# CIVIL ENGINEERING, BS

## REQUIREMENTS

### UNIVERSITY REQUIREMENTS

All undergraduate students must complete both the following Core General Education (Core GenEd) and University Degree and Quality of Work requirements. The requirements below apply to students whose first term at UW-Madison or whose earliest post-high school college attendance at any institution is Summer 2026 or later.

Students whose first term at UW-Madison or whose earliest post-high school college attendance at any institution occurred before Summer 2026 should refer to the archived Guide (<https://guide.wisc.edu/archive/>) for the requirements that apply to them.

### CORE GENERAL EDUCATION (CORE GENED) REQUIREMENTS

**Civics & Perspectives** 3 credits of Civics & Perspectives coursework.

**Communication & Literacy** 6 credits of Communication & Literacy coursework. This requirement may be partially satisfied by a qualifying placement test score. More information: <https://go.wisc.edu/qualifyingenglishplacement> (<https://go.wisc.edu/qualifyingenglishplacement/>)

**Humanities & Arts** 6 credits of Humanities & Arts coursework.

**Mathematics & Quantitative Reasoning** 6 credits of Mathematics & Quantitative Reasoning coursework. This requirement may be partially satisfied by a qualifying placement test score. More information: <https://go.wisc.edu/qualifyingmathplacement> (<https://go.wisc.edu/qualifyingmathplacement/>)

**Natural Science & Wellness** Complete both:

- 6 credits of Natural Science & Wellness or Natural Science & Wellness + Laboratory coursework.
- one course must be in Natural Science & Wellness + Laboratory coursework.

**Social & Behavioral Science** 3 credits of Social & Behavioral Science coursework.

**Total Credits** 30 credits.

For more information see the policy (<https://policy.wisc.edu/library/UW-1095/>).

### UNIVERSITY DEGREE AND QUALITY OF WORK REQUIREMENTS

All undergraduate degree recipients must complete the following minimum requirements. Requirements for some programs will exceed these requirements; see program requirements for additional information.

**Total Degree** 120 degree credits.

**Residency** Complete 30 credits in residence. A course is considered "in residence" if it is taken when in undergraduate degree-seeking status and:

- is offered by UW-Madison and completed on the UW-Madison campus or at an approved off-site location, or
- is offered by UW-Madison in an online or distance format, or is completed during participation in a UW-Madison study abroad/study away program.

**Quality of Work** Achieve at least the minimum grade point average specified by the school, college, and/or academic program.

**Math** Demonstrate minimal mathematics competence by:

- placing above MATH 96, or
- successfully completing MATH 96, or
- successfully completing a more advanced mathematics course such as MATH 112, MATH 113, MATH 114, MATH 141, MATH 211, or MATH 221.

**English Language** If required to take the UW-Madison English as a Second Language Assessment Test (MSN-ESLAT), demonstrate minimal English language competence by:

- earning credit for ESL 118, or
- achieving a qualifying MSN-ESLAT placement test score.

**Language** Complete one:

- 2 high school units of a single language other than English, or
- one course with the second semester Language designation.

**Major Declaration** Declare and complete the requirements for at least one major.

## COLLEGE OF ENGINEERING DEGREE GRANTING PROGRAMS' COMMON REQUIREMENTS

The College of Engineering departments collaborated and adopted a common set of guidelines in their degree granting program (major) requirements. Engineering departments incorporate specific coursework within their curricula to meet these guidelines. Students should refer to specific coursework detailed below the Summary of Requirements.

### COLLEGE OF ENGINEERING DEGREE GRANTING PROGRAMS' COMMON REQUIREMENTS

**Communication** All College of Engineering majors require two levels of communication coursework:

- Engineering Communication 1: one course with the Communication A designation or satisfaction of Communication A based on eligible UW Placement Score.
- Engineering Communication 2: each major specifies one course (e.g. INTEREGR 397) which also carries the Communication B designation.

**Quantitative Reasoning** All College of Engineering majors require a math sequence that incorporates two levels of quantitative reasoning.

**Humanities or Literature** All College of Engineering majors require a minimum of 6 credits with the Humanities or Literature breadth designations. See major Liberal Studies Electives Requirement below.

**Social Sciences** All College of Engineering majors require a minimum of 3 credits with the Social Sciences breadth designation. See major Liberal Studies Electives Requirement below.

**Natural Sciences** All College of Engineering majors require specific coursework that incorporates a minimum of 6 credits with the Biological, Natural, or Physical Science breadth designations.

**Ethnic Studies** All College of Engineering majors require at least one course of at least 3 credits with the Ethnic Studies designation. This course may also be used to satisfy the Social Sciences or Humanities or Literature requirement.

## CIVIL ENGINEERING, BS CURRICULUM

This curriculum applies to students admitted to the degree program this Guide academic year. Curricular requirements for students admitted in previous semesters are available in the Archive (<https://guide.wisc.edu/archive/>) section of Guide.

### SUMMARY OF REQUIREMENTS

Code	Title	Credits
	Introduction to Engineering	3
	Mathematics and Statistics	19
	Basic Science	16
	Engineering Mechanics	10
	Civil Engineering Mechanics	6
	Civil Engineering Tools	6
	Civil Engineering Breadth	21
	Civil Engineering Design	10
	Engineering Electives	13
	Communication Skills	8
	Liberal Studies Electives	16
	<b>Total Credits</b>	<b>128</b>

### INTRODUCTION TO ENGINEERING

Code	Title	Credits
INTEREGR 170	Design Practicum	3
	<b>Total Credits</b>	<b>3</b>

### MATHEMATICS AND STATISTICS REQUIREMENT

Code	Title	Credits
<b>Mathematics</b>		
MATH 221	Calculus and Analytic Geometry 1	5
MATH 222	Calculus and Analytic Geometry 2	4
MATH 234	Calculus--Functions of Several Variables	4
<b>Statistics</b>		
One of the following options:		3

STAT 324 Introduction to Statistics for Science and Engineering

or I SY E 210 Introduction to Industrial Statistics

STAT 311 & STAT 312 Introduction to Theory and Methods of Mathematical Statistics I and Introduction to Theory and Methods of Mathematical Statistics II

#### Advanced Mathematics

One of the following options: 3

MATH 319 Techniques in Ordinary Differential Equations

MATH 320 Linear Algebra and Differential Equations

**Total Credits** 19

### BASIC SCIENCE REQUIREMENT

Code	Title	Credits
One of the following:		5-9
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	
CHEM 109	Advanced General Chemistry	
One of the following:		5
PHYSICS 202	General Physics	
PHYSICS 208	General Physics	
One of the following:		3
GEOSCI 100	Introductory Geology: How the Earth Works	
GEOSCI/ ENVIR ST 106	Environmental Geology	
One of the following:		3
ZOOLOGY/ BIOLOGY/ BOTANY 151	Introductory Biology	
ZOOLOGY 153	Introductory Biology	
ZOOLOGY/ BOTANY/ ENVIR ST 260	Introductory Ecology	
MICROBIO 101	General Microbiology	

**Total Credits** 16-20

### ENGINEERING MECHANICS REQUIREMENT

Code	Title	Credits
E M A 201	Statics (with a grade of C or better)	3
E M A 202	Dynamics	3
E M A 303	Mechanics of Materials	3
E M A/M E 307	Mechanics of Materials Lab	1
	<b>Total Credits</b>	<b>10</b>

## CIVIL ENGINEERING MECHANICS REQUIREMENT

Code	Title	Credits
CIV ENGR 310	Fluid Mechanics	3
CIV ENGR/ E M A 395	Materials for Constructed Facilities	3
<b>Total Credits</b>		<b>6</b>

## CIVIL ENGINEERING TOOLS REQUIREMENT

Code	Title	Credits
CIV ENGR 159	Civil Engineering Graphics (was ME 170 before Fall 2023)	2-3
or M E 231	Geometric Modeling for Design and Manufacturing	
CIV ENGR/G L E 291	Problem Solving Using Computer Tools	4
<b>Total Credits</b>		<b>6-7</b>

## CIVIL ENGINEERING BREADTH REQUIREMENT

Code	Title	Credits
CIV ENGR 311	Hydroscience	3
CIV ENGR 320	Environmental Engineering	3
CIV ENGR/ G L E 330	Soil Mechanics	3
CIV ENGR 340	Structural Analysis I	3
CIV ENGR 370	Transportation Engineering	3
CIV ENGR 461	Construction Project Management	3
CIV ENGR 494	Civil and Environmental Engineering Decision Making	3
<b>Total Credits</b>		<b>21</b>

## CIVIL ENGINEERING DESIGN REQUIREMENT

Code	Title	Credits
CIV ENGR 578	Senior Capstone Design	4
	Every student must take at least one class in at least two of the following CEE disciplines (Water Resources, Environmental, Structural, Geological, Transportation) for a total of 6 credits. One of the two classes MUST be completed BEFORE taking CIV ENGR 578 Senior Capstone Design.	6
	Note: If a student takes three or more courses from these disciplines, two of those courses will count toward this civil engineering design requirement and the other course(s) will count towards the engineering electives requirement.	
<b>Total Credits</b>		<b>10</b>

### Water Resources

Code	Title	Credits
CIV ENGR 414	Hydrologic Design	3

### Environmental

Code	Title	Credits
CIV ENGR 426	Design of Wastewater Treatment Plants	3
CIV ENGR 427	Solid and Hazardous Wastes Engineering	3

CIV ENGR 428	Water Treatment Plant Design	3
CIV ENGR 522	Hazardous Waste Management	3

### Structural

Code	Title	Credits
CIV ENGR 445	Steel Structures I	3
CIV ENGR 447	Concrete Structures I	3

### Geological

Code	Title	Credits
CIV ENGR/ G L E 530	Seepage and Slopes	3
CIV ENGR/ G L E 532	Foundations	3

### Transportation

Code	Title	Credits
CIV ENGR 573	Geometric Design of Transport Facilities	3
CIV ENGR 574	Traffic Control	3
CIV ENGR 576	Advanced Pavement Design	3

## ENGINEERING ELECTIVES REQUIREMENT

- Students must take at least 3 credits of coursework from an ABET-accredited degree-granting program outside of the Bachelor of Science in Civil Engineering program. INTEREGR and E P D courses do not qualify for meeting this requirement; any courses cross-listed with Civil Engineering (CIV ENGR) do not qualify for meeting this requirement.
- Students must take at least 3 credits of CEE coursework in addition to the civil engineering design requirement. **Note:** Students in the Construction Engineering Management or Environmental Engineering option programs must select from a set of CIV ENGR courses approved for those options.<sup>1,2,3</sup>
- Students must take at least 7 credits of coursework that meets at least one of the following<sup>1,2,3</sup>:
  - Any course offered by an engineering department, including but not limited to CIV ENGR.
  - Any Intermediate or Advanced level course with a breadth designation of Biological Sciences, Physical Sciences and/or Natural Sciences. These courses cannot also carry a breadth designation of Social Sciences, Humanities or Literature.
  - Any of the following business courses: INTEREGR 303 Applied Leadership Competencies in Engineering, ACCT I S 300 Accounting Principles, FINANCE/ECON 300 Introduction to Finance, GEN BUS 301 Business Law, M H R 300 Managing Organizations, REAL EST/A A E/ECON/URB R PL 306 The Real Estate Process

### Total Credits: 13

- Up to three credits of CIV ENGR 1 Cooperative Education Program may be used towards Item 2 or 3.
- Up to six credits of research work (CIV ENGR 299 Independent Study, CIV ENGR 489 Honors in Research, and/or CIV ENGR 699 Independent Study) may be used towards Item 2 or 3.
- CIV ENGR 121 Sustainability Engineering for Non-Engineers, CIV ENGR 150 Introduction to Architectural Theory, CIV ENGR 151 Architectural Making I, CIV ENGR 152 Architectural Making II, CIV ENGR 155 Architectural Thinking, and

CIV ENGR 250 Architectural Visualization cannot be used in Items 2 or 3 above.

## COMMUNICATION SKILLS

Code	Title	Credits
<b>Engr Comm 1</b>		<b>3</b>
INTEREGR 156	Introduction to Writing, Speaking, and Ethics for Engineers	
or ENGL 100	Introduction to College Composition	
or LSC 100	Science and Storytelling	
or COM ARTS 1C	Introduction to Speech Composition	
or ESL 118	Academic Writing II	
<b>Speech-Related Course</b>		<b>2</b>
INTEREGR 275	Technical Presentations <sup>1</sup>	
or COM ARTS 18	Elements of Speech-Honors Course	
or COM ARTS 2	Argumentation and Debate	
or COM ARTS 2	Theory and Practice of Group Discussion	
<b>Engr Comm 2</b>		<b>3</b>
INTEREGR 397	Engineering Communication	
<b>Total Credits</b>		<b>8</b>

<sup>1</sup> INTEREGR 275 Technical Presentations is strongly recommended.

## LIBERAL STUDIES ELECTIVES

Code	Title	Credits
<b>College of Engineering Liberal Studies Electives</b>		
Complete Requirements ( <a href="https://guide.wisc.edu/undergraduate/engineering/#requirements">https://guide.wisc.edu/undergraduate/engineering/#requirements</a> )		16
<b>Requirements specific to Civil Engineering:</b>		
<i>A minimum of three credits of environmental studies course that meets the breadth designations of humanities, literature, and/or social science. Courses that also carry breadth designations of Biological Sciences, Natural Sciences, or Physical Sciences will not count towards this requirement.</i>		
<i>An economics course must be taken as part of the liberal studies electives and selected from the following list:</i>		
ECON 101	Principles of Microeconomics	
ECON 102	Principles of Macroeconomics	
ECON 111	Principles of Economics-Accelerated Treatment	
<b>Total Credits</b>		<b>16</b>

## HONORS IN RESEARCH

Students in civil engineering that have completed at least two semesters on the Madison campus with a cumulative GPA of **at least** 3.5 may apply to participate in the Honors in Research program. Students may register for 1 to 3 credits per semester. A grade of P (Progress) will be assigned each semester until the student completes the honors in research program or drops out of the program, at which time a final grade is assigned (based on research progress and the written thesis, if completed). This becomes the grade for all credits taken in CIV ENGR 489 Honors in Research.

A senior thesis worth 3 credits of CIV ENGR 489 is required. The senior thesis is a written document reporting on a substantial piece of work that is prepared in the style of a graduate thesis. The thesis advisor determines

the grade which the student receives for the thesis. A bound copy of the thesis must be submitted to the Department of Civil and Environmental Engineering office to complete the program.

The designation "Honors in Research" will be recorded on the student's transcript if the following criteria are met:

1. Satisfaction of requirements for an undergraduate degree in Civil Engineering.
2. A cumulative grade-point average of at least 3.3.
3. Completion of a total of at least 8 credits in CIV ENGR 489.
4. Completion of a senior honors thesis with a final grade of B or better.

Students interested in the Honors in Research program should contact their advisor or the BSCE chair for more information. Applications to the program are to be submitted to the BSCE chair with a supporting letter from the student's academic and thesis advisors. Decisions regarding acceptance are made by the BSCE chair.

## NAMED OPTIONS

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- **CIVIL ENGINEERING: CONSTRUCTION ENGINEERING AND MANAGEMENT ([HTTPS://GUIDE.WISC.EDU/UNDERGRADUATE/ENGINEERING/CIVIL-ENVIRONMENTAL-ENGINEERING/CIVIL-ENGINEERING-BS/CIVIL-ENGINEERING-CONSTRUCTION-ENGINEERING-MANAGEMENT-BS/](https://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/civil-engineering-bs/civil-engineering-construction-engineering-management-bs/))**