

CIVIL ENGINEERING, B.S.

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (<http://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext>) section of the *Guide*.

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| General Education | <ul style="list-style-type: none"> • Breadth–Humanities/Literature/Arts: 6 credits • Breadth–Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits • Breadth–Social Studies: 3 credits • Communication Part A & Part B * • Ethnic Studies * • Quantitative Reasoning Part A & Part B * |
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* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

SUMMARY OF REQUIREMENTS

The following curriculum applies to students who were admitted to the civil engineering degree program (classification changed to CEE) in fall 2016 or later.

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
	Communications	8
	Liberal Studies	16
Total Credits		128

INTRODUCTION TO ENGINEERING

Code	Title	Credits
INTEREGR 170	Design Practicum	3
Total Credits		3

MATHEMATICS AND STATISTICS REQUIREMENT

Code	Title	Credits
MATH 221 or MATH 217 or MATH 275	Calculus and Analytic Geometry 1 Calculus with Algebra and Trigonometry II Topics in Calculus I	5
MATH 222 or MATH 276	Calculus and Analytic Geometry 2 Topics in Calculus II	4
MATH 234	Calculus--Functions of Several Variables	4
<i>One of the following courses:</i>		3
STAT 324	Introductory Applied Statistics for Engineers	
STAT 311	Introduction to Theory and Methods of Mathematical Statistics I	
<i>One of the following advanced mathematics courses:</i>		3
MATH 319	Techniques in Ordinary Differential Equations	
MATH 320	Linear Algebra and Differential Equations	
Total Credits		19

BASIC SCIENCE REQUIREMENT

Code	Title	Credits
<i>One of the following:</i>		5
CHEM 103 & CHEM 104	General Chemistry I and General Chemistry II	
CHEM 109	Advanced General Chemistry	
<i>One of the following:</i>		5
PHYSICS 202	General Physics	
PHYSICS 208	General Physics	
<i>One of the following:</i>		3
GEOSCI 100	Introductory Geology: How the Earth Works	
GEOSCI/ ENVIR ST 106	Environmental Geology	
<i>One of the following:</i>		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

ENGINEERING MECHANICS REQUIREMENT

Code	Title	Credits
E M A 201	Statics (with a grade of C or better)	3
E M A 202 or M E 240	Dynamics	3
E M A 303 or M E 306	Mechanics of Materials	3
E M A/M E 307	Mechanics of Materials Lab	1
Total Credits		10

CIVIL ENGINEERING MECHANICS REQUIREMENT

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

CIVIL ENGINEERING TOOLS REQUIREMENT

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

CIVIL ENGINEERING BREADTH REQUIREMENT

Code	Title	Credits
CIV ENGR 311	Hydrosience	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 494	Civil and Environmental Engineering Decision Making	3
CIV ENGR 498	Construction Project Management	3
Total Credits		21

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, for a total of 6 credits. One of the two classes MUST be completed BEFORE taking CIV ENGR 578 Senior Capstone Design.	6

Water Resources

CIV ENGR 414	Hydrologic Design	
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Environmental

CIV ENGR 426	Design of Wastewater Treatment Plants	
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CIV ENGR 427	Solid and Hazardous Wastes Engineering	
CIV ENGR 428	Water Treatment Plant Design	
CIV ENGR 522	Hazardous Waste Management	
<i>Structural</i>		
CIV ENGR 445	Steel Structures I	
CIV ENGR 447	Concrete Structures I	
<i>Geological</i>		
CIV ENGR/ G L E 530	Seepage and Slopes	
CIV ENGR/ G L E 532	Foundations	
<i>Transportation</i>		
CIV ENGR 573	Geometric Design of Transport Facilities	
CIV ENGR 574	Traffic Control	
CIV ENGR 576	Advanced Pavement Design	
Note: If a student takes three or more courses from the above list, two of those courses will count toward this civil engineering design requirement and the other classes will count towards the electives requirement (see section below).		
Total Credits		10

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.^{1,2,3}
- Students must take at least 7 credits of coursework that meets at least one of the following^{1,2,3}:
 - 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

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Up to three credits of CIV ENGR 1 Cooperative Education Program may be used towards Item 2 or 3.

2

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.

3

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.

COMMUNICATIONS

Code	Title	Credits
<i>Communications A (choose one)</i>		3
ENGL 100	Introduction to College Composition	
LSC 100	Science and Storytelling	
COM ARTS 100	Introduction to Speech Composition	
ESL 118	Academic Writing II	
<i>Speech-Related Course (choose one)</i>		2
E P D 275	Technical Presentations ¹	
COM ARTS 105	Public Speaking	
COM ARTS 181	Elements of Speech-Honors Course	
COM ARTS 262	Theory and Practice of Argumentation and Debate	
COM ARTS 266	Theory and Practice of Group Discussion	
<i>Writing-Related Courses (choose one)</i>		3
INTEREGR 397	Engineering Communication	
ENGL 201	Intermediate Composition	
Total Credits		8

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E P D 275 Technical Presentations and INTEREGR 397 Engineering Communication strongly recommended to satisfy these requirements.

LIBERAL STUDIES REQUIREMENTS

Code	Title	Credits
College of Engineering Liberal Studies Requirements		
Complete Requirements (http://guide.wisc.edu/undergraduate/engineering/#requirements) ¹		16
Requirements specific to Civil Engineering:		
<i>An economics course must be selected from the following list:</i>		
ECON 101	Principles of Microeconomics	
ECON 102	Principles of Macroeconomics	
ECON 111	Principles of Economics-Accelerated Treatment	
<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>		
Total Credits		16

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All liberal studies credits must be identified with the letter H, S, L, or Z. Language courses are acceptable without the letter and are considered humanities. An economics elective and an environmental studies elective are required.

Note: See a CEE advisor for additional information.

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

Note: Beginning Fall 2023, admission to the Environmental Engineering named option for the Civil Engineering, B.S. will be suspended. Students interested in Environmental Engineering and planning to graduate in 2023-24 or later may apply for the Environmental Engineering, B.S. (<http://guide.wisc.edu/undergraduate/engineering/civil-environmental-engineering/environmental-engineering-bs/>) program. Please consult your academic advisor.

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

UNIVERSITY DEGREE REQUIREMENTS

Total Degree To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.

Residency Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.

Quality of Work Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.