

# CIVIL ENGINEERING: ENVIRONMENTAL ENGINEERING

**Admissions to the Environmental Engineering named option were suspended as of Fall 2023 and the option will be discontinued as of Fall 2027. If you have any questions, please contact the department.**

The Department of Civil and Environmental Engineering offers an undergraduate option in environmental engineering. Students taking the environmental engineering option will earn an ABET-accredited BS degree in civil engineering. The transcript will indicate that the student has earned a Bachelor of Science–Civil Engineering with option: Environmental Engineering.

Students must complete the following BS Civil Engineering requirements: Introduction to Engineering, Mathematics and Statistics, Basic Science, Mechanics, Tools, Breadth, Communications, and Liberal Studies. EV requirements for Civil Engineering Design and Engineering Electives are listed here (p. 1). Students must also meet the Environmental Engineering Breadth Requirement, also listed here (p. 1).

## REQUIREMENTS

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

### CIVIL ENGINEERING DESIGN REQUIREMENT

Code	Title	Credits
CIV ENGR 578	Senior Capstone Design	4
Every student must take at least one course in the environmental or water resources discipline and another course in a different discipline, for a total of 6 credits. One of the two courses MUST be completed BEFORE taking CIV ENGR 578 Senior Capstone Design.		6
<i>Water Resources</i>		
CIV ENGR 414	Hydrologic Design	
<i>Environmental</i>		
CIV ENGR 426	Design of Wastewater Treatment Plants	
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 courses will count toward 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 EPD courses do not qualify for meeting this requirement; any courses cross-listed with Civil Engineering (CEE) do not qualify for meeting this requirement.
- Select at least one of the following: CIV ENGR 322 Environmental Engineering Processes or CIV ENGR 410 Hydraulic Engineering.
- Students must take at least 7 credits of coursework that meets at least one of the following<sup>1, 2, 3, 4</sup>:
  - Any course offered by an engineering department, including but not limited to CEE.
  - 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**

- <sup>1</sup> Up to 3 credits of CIV ENGR 1 Cooperative Education Program may be used toward Item 3.
- <sup>2</sup> Up to 6 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 toward Item 3.
- <sup>3</sup> Depending on their choice of courses, students may need to take some of these 7 credits to satisfy the breadth requirement below.
- <sup>4</sup> 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 Item 3.

### ENVIRONMENTAL ENGINEERING BREADTH REQUIREMENT

Courses selected to meet the design and electives requirement above must also be selected in a manner that meets this requirement. At least

one CEE course must be selected from at least three of the specialty groups in the table below.

Code	Title	Credits
<i>Water Resources</i>		
CIV ENGR 410	Hydraulic Engineering	3
CIV ENGR 412	Groundwater Hydraulics	3
CIV ENGR 414	Hydrologic Design	3
CIV ENGR 415	Hydrology	3
CIV ENGR 416	Water Resources Systems Analysis	3
CIV ENGR 619	Special Topics in Hydrology	1-3
<i>Environmental Fluid Mechanics</i>		
CIV ENGR 411	Open Channel Hydraulics	3
CIV ENGR 514	Coastal Engineering	2-3
CIV ENGR 618	Special Topics in Hydraulics and Fluid Mechanics	1-3
<i>Environmental Chemistry &amp; Biotechnology</i>		
CIV ENGR 425	Environmental Engineering Microbiology	3
CIV ENGR 500	Water Chemistry	3
CIV ENGR 501	Water Analysis-Intermediate	3
CIV ENGR/ SOIL SCI 623	Microbiology of Waterborne Pathogens and Indicator Organisms	3
<i>Water &amp; Wastewater Treatment</i>		
CIV ENGR 322	Environmental Engineering Processes	3
CIV ENGR/BSE/ SOIL SCI 372	On-Site Waste Water Treatment and Dispersal	2
CIV ENGR 426	Design of Wastewater Treatment Plants	3
CIV ENGR 428	Water Treatment Plant Design	3
<i>Geoenvironmental &amp; Hazardous Wastes</i>		
CIV ENGR/G L E 421	Environmental Sustainability Engineering	3
CIV ENGR 427	Solid and Hazardous Wastes Engineering	3
CIV ENGR 522	Hazardous Waste Management	3
CIV ENGR/ G L E 635	Remediation Geotechnics	3
<i>Occupational &amp; Public Health</i>		
CIV ENGR 422	Elements of Public Health Engineering	3
<i>Air Pollution Control</i>		
CIV ENGR 423	Air Pollution Effects, Measurement and Control	3
CIV ENGR 609	Special Topics in Water Chemistry (Topic: Aerosol and Air Pollution Lab)	1-3

## FOUR-YEAR PLAN

### FOUR-YEAR PLAN SAMPLE FOUR-YEAR PLAN

#### First Year

Fall	Credits Spring	Credits
MATH 221	5 MATH 222	4
CHEM 109 <sup>1</sup>	5 CIV ENGR 159 (was M E 170 before Fall 2023)	2
INTEREGR 170	3 E M A 201	3
COMMUNICATIONS A	3 GEOSCI 100 or 106	3
	ENVIRONMENTAL STUDIES ELECTIVE <sup>2</sup>	3
<b>16</b>		<b>15</b>

#### Second Year

Fall	Credits Spring	Credits
MATH 234	4 MATH 319 or 320	3
STAT 324	3 E M A 303 <sup>3</sup>	3
E M A 202 <sup>3</sup>	3 E M A/M E 307 <sup>3</sup>	1
CIV ENGR 320	3 CIV ENGR 310	3
ZOOLOGY 153, 260, or MICROBIO 101	3 E P D 275	2
	ECON 101, 102, or 111 <sup>2</sup>	4
<b>16</b>		<b>16</b>

#### Third Year

Fall	Credits Spring	Credits
CIV ENGR 311	3 CIV ENGR DESIGN	3
CIV ENGR/G L E 330	3 CIV ENGR/E M A 395	3
CIV ENGR/G L E 291	4 CIV ENGR 340	3
INTEREGR 397	3 CIV ENGR 322 or 410 <sup>5</sup>	3
ETHNIC STUDIES <sup>2</sup>	3 PHYSICS 202	5
<b>16</b>		<b>17</b>

#### Fourth Year

Fall	Credits Spring	Credits
CIV ENGR 498	3 CIV ENGR 578 <sup>4</sup>	4
CIV ENGR 494	3 ENGR OUTSIDE CIV ENGR ELECTIVE	3
CIV ENGR 370	3 ENGR ELECTIVE	3
CIV ENGR DESIGN	3 ENGR ELECTIVE	3
ENGR ELECTIVE	1 LIBERAL STUDIES <sup>2</sup>	3
LIBERAL STUDIES <sup>2</sup>	3	
<b>16</b>		<b>16</b>

#### Total Credits 128

<sup>1</sup> Taking CHEM 103 General Chemistry I/CHEM 104 General Chemistry II instead of CHEM 109 Advanced General Chemistry adds 4 additional credits to degree requirements.

<sup>2</sup> Liberal studies coursework should add up to 16 credits, including economics elective, environmental studies elective, and ethnic studies.

<sup>3</sup> After completing E M A 201 Statics, students may take E M A 202 Dynamics and then E M A 303 Mechanics of Materials/E M A/M E 307 Mechanics of Materials Lab, or take E M A 303/E M A/M E 307 and then E M A 202.

- <sup>4</sup> At least one Civil Engineering Design course must be taken before CIV ENGR 578 Senior Capstone Design.
- <sup>5</sup> CIV ENGR 322 Environmental Engineering Processes is offered every Fall semester; CIV ENGR 410 Hydraulic Engineering is offered every Spring semester.