# CIVIL ENGINEERING: ENVIRONMENTAL ENGINEERING

## 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 |
| *Water Resources* | | |
| CIV ENGR 414 | Hydrologic Design | |
| *Environmental* | | |
| 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 | |
| *Structural* | | |
| CIV ENGR 445 | Steel Structures I | |
| CIV ENGR 447 | Concrete Structures I | |
| *Geological* | | |
| CIV ENGR/ G L E 530 | Seepage and Slopes | |
| CIV ENGR/ G L E 532 | Foundations | |
| *Transportation* | | |
| 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

1. 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.
2. Select at least one of the following: CIV ENGR 322 Environmental Engineering Processes or CIV ENGR 410 Hydraulic Engineering.
3. Students must take at least 7 credits of coursework that meets at least one of the following[1, 2, 3, 4]:
   a. Any course offered by an engineering department, including but not limited to CEE.
   b. 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.
   c. 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**

[1] Up to 3 credits of CIV ENGR 1 Cooperative Education Program may be used toward Item 3.
[2] 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.
[3] Depending on their choice of courses, students may need to take some of these 7 credits to satisfy the breadth requirement below.
[4] 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 |
|---|---|---|
| *Water Resources* | | |
| 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 |

| | | |
|---|---|---|
| *Environmental Fluid Mechanics* | | |
| 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 |
| *Environmental Chemistry & Biotechnology* | | |
| 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 |
| *Water & Wastewater Treatment* | | |
| 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 |
| *Geoenvironmental & Hazardous Wastes* | | |
| 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 |
| *Occupational & Public Health* | | |
| CIV ENGR 422 | Elements of Public Health Engineering | 3 |
| *Air Pollution Control* | | |
| 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 |