

BACHELOR OF SCIENCE WITH A MAJOR IN CIVIL ENGINEERING, ENVIRONMENTAL ENGINEERING OPTION

Graduates with the degree of bachelor of science in civil engineering, environmental engineering option, can identify, formulate, and solve problems involving design, experimentation, and analysis of a wide variety of civil engineering applications. The program of study prepares students to understand the impact of engineering solutions in a global economic, environmental, and social context. The well-structured curriculum enables students to design systems, components, or processes to meet desired needs within realistic constraints such as economic, environmental, social, political, health and safety, manufacturability, and sustainability.

REQUIREMENTS

Recommended program of study

Code	Title	Credits
First semester		
CE 1010	Introduction to Civil and Environmental Engineering	
CHEM 1111	General Chemistry I *	
MATH 1231	Single-Variable Calculus I *	
SEAS 1001	Engineering Orientation	
UW 1020	University Writing *	
Humanities, social science, or non-technical elective **		
Second semester		
CSCI 1012	Introduction to Programming with Python	
MAE 1004	Engineering Drawing and Computer Graphics	
MATH 1232	Single-Variable Calculus II *	
PHYS 1021	University Physics I *	
SUST 1001	Introduction to Sustainability (also serves as a humanities, social science, or non-technical elective)	
Third semester		
APSC 2057	Analytical Mechanics I	
APSC 2113	Engineering Analysis I	
MATH 2233	Multivariable Calculus *	

PHYS 1022	University Physics II *
Humanities, social science, or non-technical elective **	
Fourth semester	
APSC 2058	Analytical Mechanics II
APSC 3115	Engineering Analysis III
CE 1020	Introduction to a Sustainable World
CE 2210	Engineering Computations
CE 2220	Introduction to the Mechanics of Solids
CE 2710	Introduction to Transportation Engineering
Fifth semester	
CE 3110W	Civil Engineering Materials
CE 3111W	Civil Engineering Materials Lab
CE 3250	Structural Analysis
CE 3604	Physical Hydrology
MAE 3126	Fluid Mechanics I
MAE 3127	Fluid Mechanics Lab
Humanities, social science, or non-technical elective **	
Sixth semester	
CE 3310	Reinforced Concrete Structures
CE 3311	Reinforced Concrete Design Project
CE 3520	Environmental Engineering Design: Drinking Water Treatment
CE 3521	Environmental Engineering Laboratory
CE 3610	Hydraulics of Open Channel Flow
CE 3611	Hydraulics Laboratory
Humanities, social science, or non-technical elective **	
Seventh semester	
CE 4320	Metal Structures
CE 4410	Introduction to Geotechnical Engineering
CE 4411	Geotechnical Engineering Laboratory
CE 4530	Wastewater Treatment Design and Reuse
One engineering elective from the list below.	
Eighth semester	

PHIL 2135	Ethics in Business and the Professions
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One course selected from the following: EMSE 3820, EMSE 6410, PHIL 2281, or SUST 2002

CE 4721W	Traffic Engineering and Highway Safety
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Code	Title	Credits
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Elective

One environmental engineering elective selected from the following:

CE 6501	Aquatic Chemistry
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CE 6502	Environmental Engineering Design: Drinking Water Treatment
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CE 6503	Principles of Environmental Engineering
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CE 6505	Environmental Impact Assessment
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CE 6506	Microbiology for Environmental Engineers
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CE 6507	Advanced Technologies in Environmental Engineering
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CE 6508	Industrial Waste Treatment
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CE 6509	Introduction to Hazardous Wastes
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CE 6602	Hydraulic Engineering
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CE 6609	Numerical Methods in Environmental and Water Resources
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CE 6611	Advanced Hydrology
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*Course satisfies the University General Education Requirement (<http://bulletin.gwu.edu/university-regulations/general-education/>) in math, science, and writing.

**Six humanities, social science, or non-technical electives are required. Two of these courses must be PHIL 2135 and SUST 1001. At least one additional social and behavioral sciences course must be selected from the University General Education Requirement (<https://bulletin.gwu.edu/university-regulations/general-education/#generaleducationtext>) list of critical thinking in the social sciences courses; at least one humanities course must be selected from the University General Education list of critical thinking in the humanities courses. The remaining courses must be selected from the University General Education list or the SEAS approved list of non-technical elective courses (https://www.seas.gwu.edu/sites/g/files/zaxdzs5436/files/downloads/SEAS%20Non-Technical%20Course%20List_0.pdf).