Environmental Engineering, BSEnvE (Boston)

Throughout the world, environmental engineers play a key role in defining the future of sustainable cities and communities. Creating innovations and designing systems that ensure clean and healthy environments are some of the greatest collective challenges of our time. Revolutionary strategies and designs are needed to create symbiosis between our natural and manmade environments.

Using new and advanced technologies, environmental engineers must address the world's growing challenges, including engineering sustainable strategies coupled with the development of devices and tools to better predict and address environmental needs to provide clean environments and planning green infrastructure in conjunction with the natural environment for a changing planet.

With a solid foundation in engineering, chemical, biological, and ecological principles, Northeastern's environmental engineering students learn how to tackle interconnected challenges as they relate to water, energy, air quality, and related fields. Understanding these complex interactions, particularly as they impact our built and natural environments, is embodied in our program through a holistic educational approach.

Our BS Environmental Engineering program is ABET accredited. Visit the department website (https://cee.northeastern.edu/academics/undergraduate-studies/cee-accreditation/) for program objectives.

Program Requirements

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/).

NUpath Requirements

All undergraduate students are required to complete the NUpath Requirements (https://catalog.northeastern.edu/undergraduate/university-academics/nupath/).

NUpath requirements: Interpreting Culture (IC), Understanding Societies and Institutions (SI), Engaging Differences and Diversity (DD), and Integrating Knowledge and Skills Through Experience (EX) are not explicitly satisfied by required engineering coursework. Successful completion of a cooperative education experience fulfills the EX requirement. Students are responsible for satisfying unfulfilled NUpath requirements with general elective coursework.

Engineering Requirements

Code	Title	Hours
Required Engineering		
CIVE 2221 and CIVE 2222	Statics and Solid Mechanics and Recitation for CIVE 2221	4
CIVE 2300 and CIVE 2301	Environmental Measurements in Natural and Engineered Systems and Lab for CIVE 2300	4
CIVE 2331	Fluid Mechanics and Hydraulics	4
CIVE 2334	Environmental Engineering: Principles, Technology, and Sustainability	4
CIVE 3435	Environmental Pollution: Fate and Transport	4
CIVE 4534 and CIVE 4535	Water Treatment Systems Design and Lab for CIVE 4534	4
CIVE 4765	Senior Design Project—Environmental	5
GE 3300	Energy Systems: Science, Technology, and Sustainability	4
Environmental Engineering Technical Electives		
Complete 15-17 semester hours from the following:		15-17
CIVE 2260 and CIVE 2261	Materials for the Built Environment and Lab for CIVE 2260	
CIVE 2340 and CIVE 2341	Geotechnical Engineering and Lab for CIVE 2340	
CIVE 3335	Environmental Engineering Chemistry and Chemical Technologies	
CIVE 4540	Resource Recovery and Waste Treatment Technologies Abroad	
CIVE 4566	Design for Sustainable Transportation: Netherlands	
CIVE 4575	Construction Management	
CIVE 4777	Climate Hazards and Resilient Cities Abroad	

CIVE 5150	Climate and Atmospheric Change	
CIVE 5250	Organic Pollutants in the Environment	
CIVE 5260	Environmental Fluid Mechanics	
CIVE 5261	Dynamic Modeling for Environmental Investment and Policymaking	
CIVE 5271	Solid and Hazardous Waste Management	
CIVE 5275	Life Cycle Assessment of Materials, Products, and Infrastructure	
CIVE 5280	Remote Sensing of the Environment	
CIVE 5281	Coastal Dynamics and Design	
CIVE 5300 and CIVE 5301	Environmental Sampling and Analysis and Lab for CIVE 5300	
CIVE 5363	Climate Science, Engineering Adaptation, and Policy	
CIVE 5365	Climate Technologies for Decarbonization, Mitigation, and Adaptation	
CIVE 5366	Air Quality Engineering and Science	
CIVE 5368	Air Quality Management	
CIVE 5369	Atmospheric Boundary Layer Flows	
CIVE 5536	Hydrologic and Hydraulic Design	
CIVE 5670	Global Biogeochemistry	
CIVE 5699	Special Topics in Civil Engineering	
Supplemental Credit		
1 semester hour from the following course counts toward the engineering requirement:		1
CIVE 3464	Probability and Engineering Economy for Civil Engineering	
3 semester hours from the following course count toward the engineering requirement:		3
CIVE 3430	Engineering Microbiology and Ecology	
or EEMB 3455	Ecosystems Ecology	
2 semester hours from the following course count toward the engineering requirement:		2
GE 1501	Cornerstone of Engineering 1 [1]	
3 semester hours from the following course count toward the engineering requirement:		3
GE 1502	Cornerstone of Engineering 2 [1]	

Supporting Courses: Mathematics/Science

Complete all Mathematics/Science courses with a minimum of 30 semester hours.

Code	Title	Hours
Required Mathematics/Science		
CHEM 1151 and CHEM 1153	General Chemistry for Engineers and Recitation for CHEM 1151	4
MATH 1341	Calculus 1 for Science and Engineering	4
MATH 1342	Calculus 2 for Science and Engineering	4
MATH 2321	Calculus 3 for Science and Engineering	4
MATH 2341	Differential Equations and Linear Algebra for Engineering	4
PHYS 1151 and PHYS 1152 and PHYS 1153	Physics for Engineering 1 and Lab for PHYS 1151 and Interactive Learning Seminar for PHYS 1151	5
Science Elective (Earth)		
Complete one of the following:		4-5
ENVR 1120	Oceans and Coasts	
ENVR 1200	Dynamic Earth	
ENVR 2200	Earth's Changing Cycles	
ENVR 3125	Global Oceanic Change	
ENVR 3200	Water Resources	
ENVR 3600	Oceanography	
ENVR 5201	Geologic Field Seminar	
Supplemental Credit		
3 semester hours from the following course count toward the mathematics/science requirement:		3
CIVE 3464	Probability and Engineering Economy for Civil Engineering	

1 semester hour from the following course counts toward the mathematics/science requirement:		1
CIVE 3430	Engineering Microbiology and Ecology	
or EEMB 3455	Ecosystems Ecology	
1 semester hour from the following course counts toward the mathematics/science requirement:		1
GE 1501	Cornerstone of Engineering 1 [1]	

Professional Development

Code	Title	Hours
Professional Development		
GE 1000	First-Year Seminar	1
ENCP 2000	Introduction to Engineering Co-op Education	1
ENCP 3000	Professional Issues in Engineering	1
Additional Required Courses		
1 semester hour from the following course counts toward the professional development requirement:		1
GE 1501	Cornerstone of Engineering 1 [1]	
1 semester hour from the following course counts toward the professional development requirement:		1
GE 1502	Cornerstone of Engineering 2 [1]	

Writing Requirements

Code	Title	Hours
A grade of C or higher is required:		
ENGW 1111	First-Year Writing	4
ENGW 3302	Advanced Writing in the Technical Professions	4
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Required General Electives

Code	Title	Hours
Complete 28 semester hours of academic, nonremedial, nonrepetitive courses.		28

Major GPA Requirement

2.000 minimum GPA required in CIVE coursework

Program Requirement

132 total semester hours required

[1] Students can substitute Engineering Design (GE 1110) and Engineering Problem Solving and Computation (GE 1111) for Cornerstone of Engineering 1 (GE 1501) and Cornerstone of Engineering 2 (GE 1502) .

Plan of Study

Sample Plans of Study

FOUR YEARS, TWO CO-OPS IN SUMMER SECOND HALF / FALL

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CHEM 1151 (ND)	4	GE 1502 (ER)	4	CIVE 2221	4	General Elective	4
CHEM 1153	0	MATH 1342 (FQ)	4	CIVE 2222	0	General Elective	4
ENGW 1111 (WF)	4	PHYS 1151 (ND)	3	MATH 2321 (FQ)	4		
GE 1000	1	PHYS 1152 (AD)	1				
GE 1501	4	PHYS 1153	1				
MATH 1341 (FQ)	4	General Elective	4				
	17		**17**		**8**		**8**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2334	4	CIVE 2331	4	General Elective	4	Co-op	0
GE 3300	4	CIVE 3435	4	General Elective	4		
MATH 2341	4	CIVE 3464	4				

CIVE 2300 and CIVE 2301	4	ENCP 2000	1				
		Science Elective (Earth)	4				
	16		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	CIVE 3430	4	ENGW 3302 or 3315 (WD)	4	Co-op	0
		CIVE 4534 (WI)	3	General Elective	4		
		CIVE 4535	1				
		Environmental Tech. Elective	4				
		Environmental Tech. Elective	4				
	0		**16**		**8**		**0**

Year 4

Fall	Hours	Spring	Hours
Co-op	0	CIVE 4765 (EI, WI, CE)	5
		ENCP 3000	1
		General Elective	4
		Environmental Tech Elective	4
		Environmental Tech Elective	3
	0		**17**

Total Hours: 132

FOUR YEARS, TWO CO-OPS IN SUMMER FIRST HALF/ SPRING

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CHEM 1151 (ND)	4	GE 1502 (ER)	4	CIVE 2221	4	General Elective	4
CHEM 1153	0	MATH 1342 (FQ)	4	CIVE 2222	0	General Elective	4
ENGW 1111 (WF)	4	PHYS 1151 (ND)	3	MATH 2321 (FQ)	4		
GE 1000	1	PHYS 1152 (AD)	1				
GE 1501	4	PHYS 1153	1				
MATH 1341 (FQ)	4	General Elective	4				
	17		**17**		**8**		**8**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2334	4	Co-op	0	Co-op	0	General Elective	4
CIVE 2300 and CIVE 2301	4					General Elective	4
ENCP 2000	1						
MATH 2341	4						
CIVE 3464	4						
	17		**0**		**0**		**8**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2331	4	Co-op	0	Co-op	0	ENGW 3302 or 3315 (WD)	4
CIVE 3435	4					General Elective	4
GE 3300	4						
Science Elective (Earth)	4						
	16		**0**		**0**		**8**

Year 4

Fall	Hours	Spring	Hours
CIVE 3430	4	CIVE 4765 (EI, WI, CE)	5
CIVE 4534 (WI)	3	ENCP 3000	1
CIVE 4535	1	Environmental Tech. Elective	3
Environmental Tech. Elective	4	Environmental Tech Elective	4
Environmental Tech. Elective	4	General Elective	4
	16		**17**

Total Hours: 132

FIVE YEARS, THREE CO-OPS IN SUMMER SECOND HALF / FALL

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CHEM 1151 (ND)	4	GE 1502 (ER)	4	Vacation		Vacation	
CHEM 1153	0	MATH 1342 (FQ)	4				
GE 1000	1	PHYS 1151 (ND)	3				
GE 1501	4	PHYS 1152 (AD)	1				
ENGW 1111 (WF)	4	PHYS 1153	1				
MATH 1341 (FQ)	4	General Elective	4				
	17		**17**		**0**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2221	4	CIVE 2331	4	Vacation		Co-op	0
CIVE 2222	0	CIVE 2300 and CIVE 2301	4				
CIVE 2334	4	ENCP 2000	1				
GE 3300	4	MATH 2341	4				
MATH 2321 (FQ)	4	General Elective	4				
	16		**17**		**0**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	CIVE 3430	4	General Elective	4	Co-op	0
		CIVE 3435	4	General Elective	4		
		Environmental Tech. Elective	4				
		Science Elective (Earth)	4				
	0		**16**		**8**		**0**

Year 4

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	CIVE 3464	4	General Elective	4	Co-op	0
		CIVE 4534 (WI)	3	General Elective	4		
		CIVE 4535	1				
		ENCP 3000	1				
		ENGW 3302 or 3315 (WD)	4				
		Environmental Tech. Elective	4				
	0		**17**		**8**		**0**

Year 5

Fall	Hours	Spring	Hours
Co-op	0	CIVE 4765 (EI, WI, CE)	5

		Environmental Tech. Elective	3
		Environmental Tech. Elective	4
		General Elective	4
	0		**16**

Total Hours: 132

FIVE YEARS, THREE CO-OPS IN SUMMER FIRST HALF / SPRING

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CHEM 1151 (ND)	4	GE 1502 (ER)	4	Vacation		Vacation	
CHEM 1153	0	MATH 1342 (FQ)	4				
ENGW 1111 (WF)	4	PHYS 1151 (ND)	3				
GE 1000	1	PHYS 1152 (AD)	1				
GE 1501	4	PHYS 1153	1				
MATH 1341 (FQ)	4	General Elective	4				
	17		**17**		**0**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2221	4	Co-op	0	Co-op	0	Vacation	
CIVE 2222	0						
CIVE 2334	4						
CIVE 2300 and CIVE 2301	4						
ENCP 2000	1						
MATH 2321 (FQ)	4						
	17		**0**		**0**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2331	4	Co-op	0	Co-op	0	General Elective	4
GE 3300	4					General Elective	4
MATH 2341	4						
CIVE 3464	4						
	16		**0**		**0**		**8**

Year 4

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 3430	4	Co-op	0	Co-op	0	General Elective	4
CIVE 3435	4					General Elective	4
Environmental Tech. Elective	4						
Science Elective (Earth)	4						
	16		**0**		**0**		**8**

Year 5

Fall	Hours	Spring	Hours
CIVE 4534 (WI)	3	CIVE 4765 (EI, WI, CE)	5
CIVE 4535	1	Environmental Tech. Elective	3
ENCP 3000	1	Environmental Tech. Elective	4
ENGW 3302 or 3315 (WD)	4	General Elective	4
Environmental Tech. Elective	4		

General Elective	4	
	17	**16**

Total Hours: 132