Environmental Engineering and Landscape Architecture, BSEnvE (Boston)

Environmental engineering and landscape architecture are two important disciplines that deal with the complex interaction between the natural and the built environment. Both professions have critical functions that are essential in the development of society in terms of planning and designing more sustainable cities. The combination of these two professions creates great synergy and seeks to expose engineering students to the conceptual and practical content of landscape planning. Successful graduates from this degree are prepared to imagine and create projects that can be translated into reality providing solutions to address the world's growing challenges by designing clean and sustainable environments and green infrastructure.

Students completing the combined major Bachelor of Science in Environmental Engineering and Landscape Architecture receive a rigorous engineering training education, enabling a high level of engineering knowledge as well as exposure to a broad range of landscape architectural topics and design experiences.

Students will also have the opportunity to undertake a co-op experience consistent with the policies and opportunities offered within the College of Engineering.

Visit the department website (https://cee.northeastern.edu/academics/undergraduate-studies/cee-accreditation/) for program outcomes.

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: Integrating Knowledge and Skills Through Experience (EX) is 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
GE 3300	Energy Systems: Science, Technology, and Sustainability	4
Senior Design Project		
CIVE 4765	Senior Design Project—Environmental	5
Environmental Engineering Technical Elective [1]		
Complete 7-9 semester hours from the following:		7-9
CIVE 3335	Environmental Engineering Chemistry and Chemical Technologies	
CIVE 4540	Resource Recovery and Waste Treatment Technologies Abroad	
CIVE 4575	Construction Management	
CIVE 4777	Climate Hazards and Resilient Cities Abroad	
CIVE 5100	Equity in Engineering	
CIVE 5150	Climate and Atmospheric Change	

CIVE 5250	Organic Pollutants in the Environment
CIVE 5255	Tools and Techniques of Environmental Health
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]

Landscape Architecture Requirements

Code	Title	Hours
ARCH 1110	Fundamental Architectural Representation	4
ARCH 1120	Fundamental Architectural Design	6
ARCH 1310 and ARCH 1311	Buildings and Cities, A Global History and Recitation for ARCH 1310	4
ARCH 2340 and ARCH 2341	Modern Architecture and Recitation for ARCH 2340	4
LARC 2230	Introduction to Sustainable Site Planning and Design	4
LARC 2240	Sustainable Site Construction and Detailing	4
LARC 2430	Plants, People, and Landscape Change	4
LARC 2440	Planting Design	4
LARC 5420	Professional Practice in Landscape Architecture	4
or LARC 2340	Cities, Landscape, and Contemporary Culture	

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

Complete one of the following:		5
PHYS 1151	Physics for Engineering 1	
and PHYS 1152	and Lab for PHYS 1151	
and PHYS 1153	and Interactive Learning Seminar for PHYS 1151	
PHYS 1161	Physics 1	
and PHYS 1162	and Lab for PHYS 1161	
and PHYS 1163	and Recitation for PHYS 1161	
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 [2]	

Professional Development

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

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	

Integrative Courses

Code	Title	Hours
This course is already required above and also fulfills the integrative requirement.		
CIVE 4765	Senior Design Project—Environmental	

Engineering GPA Requirement

Minimum 2.000 GPA required in all CIVE coursework

Landscape Architecture GPA Requirement

Minimum 2.500 GPA required in all major courses

Program Requirement

134 total semester hours required

1 Students can substitute one Environmental Tech. Elective for Sustainable Urban Site Design (LARC 2130) in approved situations.

2 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, 1 CO-OP 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	MATH 2321 (FQ)	4	Vacation	
CHEM 1153	0	MATH 1342 (FQ)	4	CIVE 2221	4		
ENGW 1111 (WF)	4	PHYS 1151	3	CIVE 2222	0		
GE 1000	1	PHYS 1152	1				
GE 1501	4	PHYS 1153	1				
MATH 1341 (FQ)	4	Science Elective (Earth)	4				
	17		**17**		**8**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2334	4	ARCH 1310 (IC, DD)	4	GE 3300	4	Co-op	0
CIVE 2300	2	ARCH 1311	0	MATH 2341	4		
CIVE 2301	2	LARC 2440	4				
ARCH 1110	4	CIVE 3430	4				
ARCH 1120	6	CIVE 2331	4				
		ENCP 2000	1				
	18		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	ARCH 2340 (IC, SI, WI)	4	Vacation		Vacation	
		ARCH 2341	0				
		LARC 2240	4				
		CIVE 3435	4				
		CIVE 3464	4				
	0		**16**		**0**		**0**

Year 4

Fall	Hours	Spring	Hours
CIVE 4534 (WI)	3	CIVE 4765 (EI, CE, WI)	5
CIVE 4535	1	LARC 5420 or 2340 (IC, SI, WI)	4
ENCP 3000	1	Environmental Tech. Elective	3
ENGW 3302 or 3314 (WD)	4	Environmental Tech. Elective	4
LARC 2230	4		
LARC 2430	4		
	17		**16**

Total Hours: 134

FOUR YEARS, 1 CO-OP IN SPRING /SUMMER FIRST HALF

Year 1

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

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2334	4	CIVE 3430	4	GE 3300	4	Vacation	
CIVE 2300	2	CIVE 2331	4	MATH 2341	4		
CIVE 2301	2	ARCH 2340	4				
ARCH 1110	4	ARCH 2341	0				
ARCH 1120	6	ARCH 1310	4				
		ARCH 1311	0				
		ENCP 2000	1				
	18		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 3464	4	Co-op	0	Co-op	0	Vacation	
CIVE 3435	4						
LARC 2230	4						
LARC 2430	4						
	16		**0**		**0**		**0**

Year 4

Fall	Hours	Spring	Hours
CIVE 4534 (WI)	3	CIVE 4765 (EI, CE, WI)	5
CIVE 4535	1	LARC 2440	4
ENCP 3000	1	LARC 2240	4
ENGW 3302 or 3315 (WD)	4	LARC 5420 or 2340 (IC, SI, WI)	4
Environmental Tech. Elective	3		
Environmental Tech. Elective	4		
	16		**17**

Total Hours: 134

FIVE YEARS, 3 CO-OPS IN SUMMER SECOND HALF/FALL

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CHEM 1151 (ND)	4	ARCH 1110 (EI)	4	MATH 2321 (FQ)	4	Vacation	
CHEM 1153	0	ARCH 1120 (EI, ND)	6	PHYS 1151 (ND)	3		
ENGW 1111 (WF)	4	GE 1502 (ER)	4	PHYS 1152 (AD)	1		
GE 1000	1	MATH 1342 (FQ)	4	PHYS 1153	1		
GE 1501	4						
MATH 1341 (FQ)	4						
	17		**18**		**9**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2334	4	ARCH 1310 (IC, DD)	4	CIVE 2221	4	Co-op	0
LARC 2230 (ND)	4	ARCH 1311	0	CIVE 2222	0		
LARC 2430 (ND)	4	CIVE 3430	4	GE 3300	4		
MATH 2341	4	CIVE 3464	4				
		CIVE 2300 and CIVE 2301	4				
		ENCP 2000	1				
	16		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	CIVE 2331	4	Vacation		Co-op	0
		CIVE 3435	4				
		LARC 2440	4				
		Science Elective (Earth)	4				
	0		**16**		**0**		**0**

Year 4

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	ARCH 2340 (IC, SI, WI)	4	Vacation		Co-op	0
		ARCH 2341	0				
		CIVE 4534 (WI)	3				
		CIVE 4535	1				
		ENCP 3000	1				
		ENGW 3302 or 3315 (WD)	4				
		LARC 2240	4				
	0		**17**		**0**		**0**

Year 5

Fall	Hours	Spring	Hours
Co-op	0	CIVE 4765 (EI, CE, WI)	5
		LARC 5420 or 2340 (IC, SI, WI)	4
		Environmental Tech. Elective	3
		Environmental Tech. Elective	4
	0		**16**

Total Hours: 134