Environmental Engineering and Landscape Architecture, BSEnvE

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.

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 (http://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/).

NUpath Requirements

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

For this combined major, Nupath requirements are satisfied in several courses across the program and by required courses in the combined major.

Engineering Requirement

| Required Engineering Required Engineering 4 CIVE 2221 and Recitation for CIVE 2221 4 and CIVE 2222 and Recitation for CIVE 2221 4 CIVE 2250 Materials for the Built Environment 5 and CIVE 2260 and Lab for CIVE 2260 4 CIVE 2331 Fluid Mechanics and Hydraulics 4 CIVE 2334 Environmental Engineering: Principles, Technology, and Sustainability 4 CIVE 4335 Environmental Pollution Fate and Transport 4 CIVE 4534 Water Treatment Systems Design 4 and CIVE 4535 and Lab for CIVE 4534 4 and CIVE 4530 Environmental Sampling and Analysis 4 and CIVE 5301 and Lab for CIVE 5300 6 GE 3300 Energy Systems: Science, Technology, and Sustainability 4 Supplemental Credit 7 7 CIVE 4765 Senior Design Project—Environmental 7 CIVE 3464 Probability and Engineering requirement: 1 1 semester hour from the following course count toward the engineering requirement: 3 7 1 (VE 3464 Probability and Engineering requirement: <td< th=""><th></th><th></th><th></th></td<> | | | |
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| 2 semester hours from the following course count toward the engineering requirement: 2 | 3 semester hours from the follow | ing course count toward the engineering requirement: | 3 |
| | | | |
| | 2 semester hours from the follow | ing course count toward the engineering requirement: | 2 |
| | GE 1501 | Cornerstone of Engineering 1 ¹ | |

2 Environmental Engineering and Landscape Architecture, BSEnvE

| 3 semester hours from th | e 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 | General Chemistry for Engineers | 4 |
| and CHEM 1153 | and Recitation for CHEM 1151 | |
| 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 and PHYS 1152 and PHYS 1153 | Physics for Engineering 1 and Lab for PHYS 1151 and Interactive Learning Seminar for PHYS 1151 | |
| PHYS 1161 and PHYS 1162 and PHYS 1163 | Physics 1 and Lab for PHYS 1161 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 cours | e 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 2335 | Environmental Engineering Chemistry | |
| 1 semester hour from the following course | counts toward the mathematics/science requirement: | 1 |
| CIVE 3430 | Engineering Microbiology and 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 followi | ing course counts toward the professional development requirement: | 1 |
| GE 1501 | Cornerstone of Engineering 1 ¹ | |
| 1 semester hour from the followi | ing 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 | ł: | |
| 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 |
| | bove and also fulfills the integrative requirement. | |
| This course is already required a | bove and also rannis the integrative requirement. | |

Minimum 2.000 GPA required in all major courses

Landscape Architecture GPA Requirement

Minimum 2.500 GPA required in all major courses

Program Requirements

136 total semester hours required

¹ Students can substitute GE 1110 and GE 1111 for GE 1501 and 1502 in approved situations.

Plan of Study

Four Years, 1 Co-op in Summer 2/Fall

Year 1 Fall Hours Spring Summer 1 Hours Summer 2 Hours Hours CHEM 1151 (ND) 4 ARCH 1110 (EI) 4 MATH 2321 (FQ) 4 Vacation 0 ARCH 1120 (EI, ND) 6 PHYS 1151 (ND) CHEM 1153 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 Summer 1 Hours Summer 2 Spring Hours Hours CIVE 2334 4 ARCH 1310 (IC, DD) 4 CIVE 2221 4 Co-op LARC 2230 (ND) 4 ARCH 1311 0 CIVE 2222 0 LARC 2430 (ND) 4 CIVE 2260 4 GE 3300 4 MATH 2341 4 CIVE 2261 (AD) 1 **CIVE 2335** 4 CIVE 3430 4

4 Environmental Engineering and Landscape Architecture, BSEnvE

| | | ENCP 2000 | | 1 | | | |
|------------------------|-------|----------------------------------|-------|------------|-------|----------|-------|
| | | 16 | | 18 | | 8 | 0 |
| Year 3 | | | | | | | |
| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours |
| Со-ор | | ARCH 2340 (IC, SI, WI) | | 4 Vacation | | Vacation | |
| | | ARCH 2341 | | 0 | | | |
| | | CIVE 2331 | | 4 | | | |
| | | LARC 2240 | | 4 | | | |
| | | LARC 2440 | | 4 | | | |
| | | 0 | | 16 | | 0 | 0 |
| Year 4 | | | | | | | |
| Fall | Hours | Spring | Hours | | | | |
| CIVE 3435 | | 4 CIVE 4765 (EI, CE, WI) | | 5 | | | |
| CIVE 3464 | | 4 CIVE 5300 | | 2 | | | |
| CIVE 4534 (WI) | | 3 CIVE 5301 | | 2 | | | |
| CIVE 4535 | | 1 LARC 5420 or 2340 (IC, SI, WI) | | 4 | | | |
| ENCP 3000 | | 1 Science Elective (Earth) | | 4 | | | |
| ENGW 3302 or 3315 (WD) | | 4 | | | | | |
| | | 17 | | 17 | | | |

Total Hours: 136

Five Years, 3 Co-ops in Summer 2/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 | |
| LARC 2230 (ND) | | 4 ARCH 1311 | | 0 CIVE 2222 | | 0 | |
| LARC 2430 (ND) | | 4 CIVE 2260 | | 4 GE 3300 | | 4 | |
| MATH 2341 | | 4 CIVE 2261 (AD) | | 1 | | | |
| | | CIVE 2335 | | 4 | | | |
| | | CIVE 3430 | | 4 | | | |
| | | ENCP 2000 | | 1 | | | |
| | | 16 | | 18 | | 8 | 0 |
| Year 3 | | | | | | | |
| Fall | Hours | Spring | Hours | Summer 1 | Hours | Summer 2 | Hours |
| Со-ор | | CIVE 2331 | | 4 Vacation | | Со-ор | |
| | | 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 |
| Со-ор | | ARCH 2340 (IC, SI, WI) | | 4 Vacation | | Со-ор | |
| | | | | | | | |

| | | 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 | | |
| Со-ор | | CIVE 3464 | 4 | | |
| | | | | | |
| | | CIVE 4765 (EI, CE, WI) | 5 | | |
| | | CIVE 4765 (EI, CE, WI) CIVE 5300 | 5 2 | | |
| | | | | | |
| | | CIVE 5300 | 2 | | |
| | | CIVE 5300 CIVE 5301 LARC 5420 or 2340 (IC, SI, | 2 2 | | |

Total Hours: 136