CIVIL ENGINEERING DEGREE

Students must also complete the Undergraduate Registration Requirement (https://catalogs.northwestern.edu/undergraduate/requirements-policies/undergraduate-registration-requirement) and the degree requirements of their home school.

Requirements (48 units)

Core courses (32 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 mathematics courses</td>
<td>(<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
</tr>
<tr>
<td>4 engineering analysis and computer proficiency courses</td>
<td>(<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
</tr>
<tr>
<td>4 units of basic science</td>
<td>(<a href="https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext">https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext</a>)</td>
</tr>
</tbody>
</table>

- PHYSICS 135-2 General Physics
- CHEM 131-0 General Chemistry I
- CHEM 151-0 Advanced General Chemistry I
- CHEM 171-0 Advanced General Inorganic Chemistry

1 unit in biological sciences, or

- CIV_ENV 203-0 Earth in the Anthropocene
- or EARTH 201-0 Earth Systems Revealed
- or EARTH 202-0 Earth's Interior

1 additional unit in biological sciences, chemistry, or physics, or

- EARTH 201-0 Earth Systems Revealed
- or EARTH 202-0 Earth's Interior
- or CIV_ENV 203-0 Earth in the Anthropocene

3 design and communications courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

5 basic engineering courses:

- CIV_ENV 216-0 Mechanics of Materials I
- MECH_ENG 241-0 Fluid Mechanics I
- MECH_ENG 222-0 Thermodynamics & Statistical Mechanics I
- or BMD_ENG 250-0 Thermodynamics
- or CHEM_ENG 211-0 Thermodynamics
- CIV_ENV 306-0 Uncertainty Analysis
- CIV_ENV 304-0 Civil and Environmental Engineering Systems Analysis

7 social sciences/humanities courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

5 unrestricted electives (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

1 unit of unrestricted electives is from Chemistry lab, PHYSICS 136-2, and CIV_ENV 301-1

1 See general requirements (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext) for details.

2 PHYSICS 140-2 Fundamentals of Physics for PHYSICS 135-2 General Physics. Associated lab is PHYSICS 136-3 General Physics Laboratory.

Major Program (16 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Basic Courses: choose 2 from below</td>
<td></td>
</tr>
</tbody>
</table>

- CIV_ENV 220-0 Structural Art

- CIV_ENV 201-0 Engineering Possibilities: Decision Science in the Age of Smart Technologies
- CIV_ENV 202-0 Biological and Ecological Principles
- CIV_ENV 221-0 Theory of Structures I
- CIV_ENV 250-0 Earth Surface Engineering
- CIV_ENV 260-0 Environmental Systems and Processes
- CIV_ENV 371-0 Introduction to Transportation Planning and Analysis
- or CIV_ENV 376-0 Transportation System Operations

4 Focus Areas

- Architectural Engineering & Design
- Environmental Geotechnics
- Management Structures
- Transportation

1 Capstone Design

- CIV_ENV 382-1 Capstone Design I
- CIV_ENV 382-2 Capstone Design II

5 Technical Electives

Professional Development

- CIV_ENV 301-1 Professional Development Seminar I

At least 12 out of the 16 units in the major program must be CIV_ENV courses with 100% engineering topic; only GEN_ENG 220-1 Analy/Comp Graph and GEN_ENG 220-2 Analy/Comp Graph II may be taken P/N.

Must select from an approved list available in Undergraduate CIV_ENV Handbook; must choose at least 2 design courses from 2 focus areas.

Design is defined as courses taught by licensed Professional Engineer or equivalent as defined by ABET and use appropriate codes and/or standards.

300 level or higher in mathematics, science, engineering, or another area supporting the area of specialization; GEN_ENG 220-1 Analy/Comp Graph and GEN_ENG 220-2 Analy/Comp Graph II may count toward this requirement; only 1 unit of CIV_ENV 399-0 Projects may be counted; no 399 from another department is accepted. Choose from an approved list available in Undergraduate CIV_ENV Handbook.

0.34 units may count towards unrestricted electives.

1.2.3.4.5.