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 (27 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICS 135-2</td>
<td>General Physics</td>
</tr>
<tr>
<td>CHEM 131-0</td>
<td>Fundamentals of Chemistry I</td>
</tr>
<tr>
<td>or CHEM 151-0</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>or CHEM 171-0</td>
<td>Advanced General Inorganic Chemistry</td>
</tr>
<tr>
<td>CIV_ENV 203-0</td>
<td>Earth in the Anthropocene</td>
</tr>
<tr>
<td>or EARTH 201-0</td>
<td>Earth Systems Revealed</td>
</tr>
<tr>
<td>or EARTH 202-0</td>
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</tr>
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</table>

4 units of basic science:

- 4 mathematics courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)
- 4 units of basic science:
  - PHYSICS 135-2 General Physics
  - CHEM 131-0 Fundamentals of Chemistry I
  - or CHEM 151-0 General Chemistry I
  - or 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 (200-level or higher), 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

4 engineering analysis and computer proficiency courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)

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

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

Major Program (21 units)

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<tr>
<td>CIV_ENV 201-0</td>
<td>Engineering Possibilities: Decision Science in the Age of Smart Technologies</td>
</tr>
<tr>
<td>CIV_ENV 202-0</td>
<td>Biological and Ecological Principles</td>
</tr>
<tr>
<td>CIV_ENV 220-0</td>
<td>Structural Art</td>
</tr>
</tbody>
</table>

5 basic engineering courses

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

4 civil engineering breadth courses

- CIV_ENV 221-0 Theory of Structures I
- CIV_ENV 250-0 Earth Surface Engineering

4 courses chosen from the focus areas below

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

2 capstone design courses (0.5 units each)

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

5 technical elective courses

- 300 level or higher in mathematics, science, engineering, or another area supporting the area of specialization

1 professional development course (0.34 units)

- CIV_ENV 301-1 Professional Development Seminar I

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1. See general requirements for details.
2. PHYSICS 125-2 General Physics for ISP or PHYSICS 140-3 Fundamentals of Physics may be substituted for PHYSICS 135-2 General Physics. Associated lab is PHYSICS 126-2 Physics for ISP Laboratory or PHYSICS 136-2 General Physics Laboratory.
3. At least 17 out of the 21 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.
4. Must select from an approved list available in Undergraduate CIV_ENV Handbook; must choose at least 2 design courses from 2 focus areas.
5. Design is defined as courses taught by licensed Professional Engineer or equivalent as defined by ABET and use appropriate codes and/or standards.
6. 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.
7. 0.34 units may count towards unrestricted electives.