# 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)*[1]

| Course | Title |
|---|---|
| **4 mathematics courses (https://catalogs.northwestern.edu/undergraduate/engineering-applied-science/#requirementstext)** | |
| **4 units of basic science:** [2] | |
| 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)*[3]

| Course | Title |
|---|---|
| **2 basic courses chosen from the options below** | |
| CIV_ENV 201-0 | Engineering Possibilities: Decision Science in the Age of Smart Technologies |
| CIV_ENV 202-0 | Biological and Ecological Principles |
| CIV_ENV 220-0 | Structural Art |
| **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 |
| 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 courses chosen from the focus areas below** [4,5] | |
| *Architectural Engineering & Design* | |
| *Environmental* | |
| *Geotechnics* | |
| *Management* | |
| *Structures* | |
| *Transportation* | |
| **2 capstone design courses (0.5 units each)** | |
| CIV_ENV 382-1 & CIV_ENV 382-2 | Capstone Design I and Capstone Design II |
| **5 technical elective courses** [6] | |
| 300 level or higher in mathematics, science, engineering, or another area supporting the area of specialization | |
| **1 professional development course (0.34 units)** [7] | |
| CIV_ENV 301-1 | Professional Development Seminar I |

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[3] 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.