# Bachelor of Science in Civil Engineering - Environmental Engineering Concentration with Co-op

Learn more about the Bachelor of Science in Civil Engineering.

## Cooperative Education Program

A Cooperative Education (Co-Op) is an optional program available at the College of Engineering where you have the opportunity to gain professional work experience before graduation. It is designed to give you the chance to apply the knowledge learned in the classroom to real life problems. You will be exposed to the latest technology and new ideas at a worksite helping you understand your field of work more extensively. During the Co-Op, you will make valuable connections with professionals in your field. A cooperative education can enhance and strengthen you academically, professionally and personally.

## Summary of Requirements

### University Requirements

All new students are required to complete the university's General Education (GenEd) curriculum.

All Temple students must take a minimum of two writing-intensive courses for a total of at least six credits. The writing-intensive course credits are counted as part of the major; they are not General Education (GenEd) or elective credits. The writing-intensive courses must be completed at Temple University and students may not transfer in credits to satisfy this requirement. The specific writing-intensive courses required for this major are:

| Code | Title | Credit Hours |
|---|---|---|
| ENGR 2196 | Technical Communication | 3 |
| or ENGR 2996 | Honors Technical Communication by Design | |
| ENGR 4296 | Senior Design Project II | 3 |
| or ENGR 4996 | Honors Senior Design Project II | |

### Department Requirements

| Code | Title | Credit Hours |
|---|---|---|
| **Required Math & Basic Science Courses** | | |
| MATH 1041 | Calculus I | 4 |
| or MATH 1941 | Honors Calculus I | |
| MATH 1042 | Calculus II | 4 |
| or MATH 1942 | Honors Calculus II | |
| MATH 2043 | Calculus III | 4 |
| or MATH 2943 | Honors Calculus III | |
| MATH 2041 | Differential Equations I | 3 |
| or MATH 2941 | Honors Differential Equations I | |
| or MATH 3041 | Differential Equations I | |
| or MATH 3941 | Honors Differential Equations I | |
| CEE 3048 | Probability, Statistics & Stochastic Methods | 3 |
| PHYS 1061 | Elementary Classical Physics I | 4 |
| or PHYS 1961 | Honors Elementary Classical Physics I | |
| PHYS 1062 | Elementary Classical Physics II | 4 |
| or PHYS 1962 | Honors Elementary Classical Physics II | |
| CHEM 1035 | Chemistry for Engineers | 3 |
| CHEM 1033 | General Chemistry Laboratory I | 1 |
| or CHEM 1953 | Honors Chemical Science Laboratory I | |
| CEE 2711 | Environmental Chemistry & Microbiology | 3 |
| **Required General Education Courses** | | |

| | | |
|---|---|---|
| Select one of the following: | | 4 |
| ENG 0802 | Analytical Reading and Writing | |
| ENG 0812 | Analytical Reading and Writing: ESL | |
| ENG 0902 | Honors Literature/Reading/Writing | |
| IH 0851 | Intellectual Heritage I: The Good Life | 3 |
| or IH 0951 | Honors Intellectual Heritage I: The Good Life | |
| IH 0852 | Intellectual Heritage II: The Common Good | 3 |
| or IH 0952 | Honors Intellectual Heritage II: The Common Good | |
| GenEd 08xx or 09xx (U.S. Society) | | 3 |
| GenEd 08xx or 09xx (Global/World Society) | | 3 |
| GenEd 08xx or 09xx (Human Behavior) | | 3 |
| GenEd 08xx or 09xx (The Arts) | | 3 |
| GenEd 08xx or 09xx (Race and Diversity) | | 3 |
| **Required Civil & Environmental Engineering Courses** | | |
| CEE 1105 | Surveying | 2 |
| CEE 2011 | Civil Engineering Materials | 2 |
| CEE 3311 | Construction Engineering | 3 |
| CEE 3331 | Soil Mechanics | 3 |
| CEE 3332 | Soil Mechanics Laboratory | 1 |
| CEE 3711 | Environmental Engineering | 3 |
| CEE 4631 | Environmental Hydrology | 3 |
| CEE 4711 | Air Pollution Control System | 3 |
| CEE 4721 | Water and Wastewater Systems Design | 3 |
| Approved Civil & Environmental Engineering Technical Electives | | 6 |
| Free Elective | | 6 |
| **Required Engineering Courses** | | |
| ENGR 1101 | Introduction to Engineering & Engineering Technology | 3 |
| or ENGR 1901 | Honors Introduction to Engineering | |
| ENGR 1102 | Introduction to Engineering Problem Solving | 3 |
| ENGR 1117 | Engineering Graphics | 2 |
| ENGR 2196 | Technical Communication (WI) | 3 |
| or ENGR 2996 | Honors Technical Communication by Design | |
| ENGR 2331 | Engineering Statics [1] | 3 |
| or ENGR 2931 | Honors Engineering Statics | |
| ENGR 2332 | Engineering Dynamics [1] | 3 |
| ENGR 2333 | Mechanics of Solids [1] | 3 |
| or ENGR 2933 | Honors Mechanics of Solids | |
| ENGR 3001 | Engineering Economics | 3 |
| ENGR 3553 | Mechanics of Fluids | 3 |
| or ENGR 3953 | Honors Mechanics of Fluids | |
| ENGR 3571 | Classical and Statistical Thermodynamics | 3 |
| ENGR 4169 | Engineering Seminar | 1 |
| ENGR 4175 | Senior Design Project I for Civil Engineering | 2 |
| ENGR 4296 | Senior Design Project II (WI) | 3 |
| or ENGR 4996 | Honors Senior Design Project II | |
| **Required Cooperative Education Courses** | | |
| ENGR 2181 | Co-Op Work Experience I | 3 |
| ENGR 3181 | Co-Op Work Experience II | 3 |
| **Total Credit Hours** | | **134** |

[1] Courses must be passed with a C- or better.

# Suggested Academic Plan

Below is the five-year academic plan for the Co-Op program leading to the Bachelor of Science in Civil Engineering with a concentration in Environmental Engineering. The minimum requirement for graduation is 134 semester hours.

Please note that this is a **suggested** academic plan. Depending on your situation, your academic plan may look different.

## Bachelor of Science in Civil Engineering: Environmental Engineering Concentration with Cooperative Education

### Requirements for New Students starting in the 2021-2022 Academic Year

| | | |
|---|---|---|
| **Year 1** | | |
| **Fall** | | **Credit Hours** |
| ENGR 1101 or 1901 | Introduction to Engineering & Engineering Technology | 3 |
| MATH 1041 or 1941 | Calculus I | 4 |
| CHEM 1035 | Chemistry for Engineers | 3 |
| CHEM 1033 or 1953 | General Chemistry Laboratory I | 1 |
| ENG 0802, 0812, or 0902 | Analytical Reading and Writing [GW] | 4 |
| | **Term Credit Hours** | **15** |
| **Spring** | | |
| MATH 1042 or 1942 | Calculus II | 4 |
| PHYS 1061 or 1961 | Elementary Classical Physics I | 4 |
| ENGR 1102 | Introduction to Engineering Problem Solving | 3 |
| ENGR 1117 | Engineering Graphics | 2 |
| CEE 1105 | Surveying | 2 |
| | **Term Credit Hours** | **15** |
| **Year 2** | | |
| **Fall** | | |
| MATH 2043 or 2943 | Calculus III | 4 |
| PHYS 1062 or 1962 | Elementary Classical Physics II | 4 |
| ENGR 2331 or 2931 | Engineering Statics | 3 |
| CEE 2711 | Environmental Chemistry & Microbiology | 3 |
| IH 0851 or 0951 | Intellectual Heritage I: The Good Life [GY] | 3 |
| | **Term Credit Hours** | **17** |
| **Spring** | | |
| MATH 2041, 2941, 3041, or 3941 | Differential Equations I | 3 |
| ENGR 2332 | Engineering Dynamics | 3 |
| ENGR 2333 or 2933 | Mechanics of Solids | 3 |
| ENGR 3571 | Classical and Statistical Thermodynamics | 3 |
| CEE 2011 | Civil Engineering Materials | 2 |
| IH 0852 or 0952 | Intellectual Heritage II: The Common Good [GZ] | 3 |
| | **Term Credit Hours** | **17** |
| **Year 3** | | |
| **Fall** | | |
| ENGR 2196 or 2996 | Technical Communication [WI] | 3 |
| ENGR 3553 or 3953 | Mechanics of Fluids | 3 |
| CEE 3331 | Soil Mechanics | 3 |
| CEE 3332 | Soil Mechanics Laboratory | 1 |
| CEE 3711 | Environmental Engineering | 3 |
| GenEd Breadth Course | | 3 |
| | **Term Credit Hours** | **16** |
| **Spring** | | |
| ENGR 3001 | Engineering Economics | 3 |

| | | |
|---|---|---|
| ENGR 4169 | Engineering Seminar | 1 |
| CEE 3048 | Probability, Statistics & Stochastic Methods | 3 |
| CEE 3311 | Construction Engineering | 3 |
| GenEd Breadth Course | | 3 |
| Free Elective | | 3 |
| | **Term Credit Hours** | **16** |
| **Year 4** | | |
| **Fall** | | |
| ENGR 2181 | Co-Op Work Experience I | 3 |
| | **Term Credit Hours** | **3** |
| **Spring** | | |
| ENGR 3181 | Co-Op Work Experience II | 3 |
| | **Term Credit Hours** | **3** |
| **Year 5** | | |
| **Fall** | | |
| ENGR 4175 | Senior Design Project I for Civil Engineering | 2 |
| CEE 4631 | Environmental Hydrology | 3 |
| CEE 4711 | Air Pollution Control System | 3 |
| Approved Civil & Environmental Engineering Technical Elective | | 3 |
| GenEd Breadth Course | | 3 |
| GenEd Breadth Course | | 3 |
| | **Term Credit Hours** | **17** |
| **Spring** | | |
| ENGR 4296 or 4996 | Senior Design Project II [WI] | 3 |
| CEE 4721 | Water and Wastewater Systems Design | 3 |
| Approved Civil & Environmental Engineering Technical Elective | | 3 |
| GenEd Breadth Course | | 3 |
| Free Elective | | 3 |
| | **Term Credit Hours** | **15** |
| | **Total Credit Hours:** | **134** |

## Approved Civil & Environmental Engineering Technical Electives

| Code | Title | Credit Hours |
|---|---|---|
| CEE 3211 | Transportation Engineering | 3 |
| CEE 3411 & CEE 3412 | Structural Analysis and Structural Analysis Laboratory | 4 |
| CEE 3441 | Steel & Concrete Design | 4 |
| CEE 3611 | Hydraulic Engineering | 3 |
| CEE 4221 | Intelligent Transportation Systems | 3 |
| CEE 4244 | Introduction to Geosynthetics | 3 |
| CEE 4301 | Construction Administration | 3 |
| CEE 4302 | Engineering Project Management | 3 |
| CEE 4303 | Construction Financial Management | 3 |
| CEE 4312 | Construction Equipment Management | 3 |
| CEE 4321 | Geotechnical Engineering | 3 |
| CEE 4531 | Life Cycle Assessment and Carbon Footprinting | 3 |
| CEE 4622 | Fate Pollutants in Subsurface Environments | 3 |
| CEE 4623 | Contaminant Dynamics in Urban Streams | 3 |
| CEE 4641 | Urban Streams and Stormwater Management | 3 |
| CEE 4731 | Solid & Hazardous Waste Management | 3 |
| CEE 4762 | Environmental Organic Chemistry | 3 |