

CIVIL ENGINEERING (BS)



This program was approved for students entering the university in the Summer 2025-Spring 2026 catalog year. For more information about catalog year, go to Catalog Year Information (<https://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year/>).

Bachelor of Science in Civil Engineering

Unit: Speed School of Engineering (SS) (<https://engineering.louisville.edu>)

Department: Civil Engineering (<https://engineering.louisville.edu/civil/>)

Academic Plan Code(s): CE_ _BCE

Program Information

The Bachelor of Science in Civil Engineering degree program is accredited by the Engineering Accreditation Commission (EAC) of ABET, <https://www.abet.org> (<https://www.abet.org/>), under the Commission's General Criteria and the Program Criteria for Civil and Similarly Named Engineering Programs.

Students who graduate from ABET-accredited programs are authorized to sit for the Fundamentals of Engineering (FE) exam, and are encouraged to do so. Completion of the FE Exam is not required for any of the Engineering School's degree programs. The FE Exam is a multiple-choice test, administered by the National Council of Examiners for Engineering and Surveying (NCEES). Passing the FE exam is the first step to becoming licensed as a Professional Engineer. Engineers who have successfully passed the FE exam are considered "Engineers in Training (EIT)". Once an EIT has accumulated four years of acceptable work experience in their field of engineering, they are then able to sit for the Principles and Practice of Engineering (PE) exam, in order to become a professionally licensed engineer. The PE exams go beyond testing academic knowledge and require knowledge gained in engineering practice. The requirement to accumulate work experience before taking a PE exam means that the program is not designed to prepare students for immediate licensure.

Program Educational Objectives

In accordance with our mission statement, within three to five years of graduation;

- Our graduates will grow from technical competency to professional proficiency.
- Our graduates will engage in professional development and life-long learning.

- Our graduates will exhibit leadership and team-building skills.
- Our graduates will provide service to the profession, and to society.

Student Outcomes

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Degree Summary

| Code | Title | Hours |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| | General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹ | 31 |
| | (19 hours of General Education requirements may be satisfied through coursework required by the degree program) | |
| | College/School Requirements | 35 |
| | Program/Major Requirements | 54 |
| | Supporting Courses | 22 |
| | Minimum Total Hours | 123 |

¹ Some courses required in this degree program satisfy multiple requirements. To complete the degree **in the minimum number of hours listed**, some hours from the General Education Requirements must be satisfied by courses defined by the unit and/or program. Using other courses to satisfy General Education requirements will require additional hours to complete the degree requirements. See the Degree Requirements and/or Track tabs for specific coursework.

Specific coursework information can be found on the Degree Requirements tab.

Incoming Student Admission Criteria

High School Curriculum Requirements: All schools require graduation from an accredited high school and completion of the Kentucky Pre-College Curriculum requirements. In addition, Speed School requires successful completion of the following courses in high school:

- Calculus or pre-calculus
- Chemistry

Students with ACT / SAT Scores

- ACT composite and math scores of 25 OR SAT combined CR+M score of 1200 and math score of 590. A 3.0 GPA on a 4.0 scale

OR

- ACT composite and math scores of 24 OR SAT combined CR+M score of 1160 and math score of 570. A 3.5 GPA on a 4.0 scale

Students without ACT / SAT Scores

- HS GPA of 3.0 (or better) on a 4.0 scale
- Comprehensive transcript evaluation
- Review of Student Resume

Transferring to Engineering BS degree programs

Students with 24 hours or more transferable semester hours will have a minimum college grade point average of 2.8 and at least B-minus grades in each of the following courses: ENGR 181 (or equivalent) and Intro to Chemistry (CHEM 101 or equivalent).

It is recommended students successfully complete Physics I (PHYS 298 or equivalent) before transferring to the J.B. Speed School of Engineering.

General Education Requirements

| Code | Title | Hours |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| | General Education Requirements (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ¹ | 31 |
| The following courses are required by the program and satisfy the respective General Education Requirement(s): | | |
| CHEM 201 | General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| CHEM 207 | Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| COMM 111 | Introduction to Public Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| | or COMM 112 Business and Professional Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| ENGL 101 & ENGL 102 | Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ^{2,3} | |
| ENGR 101 | Engineering Analysis I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |

All degrees require the completion of the University-wide General Education Program (link provided above). To complete the degree in

the **minimum number of hours** listed on the Overview tab, some hours from the General Education Requirements must be satisfied by courses defined by the unit and/or program.

College/School Requirements

| Code | Title | Hours |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Speed School Core | | |
| CHEM 201 | General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ² | 3 |
| CHEM 207 | Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ² | 1 |
| COMM 111 | Introduction to Public Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ² | 3 |
| | or COMM 112 Business and Professional Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |
| ENGL 101 | Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ^{2,3} | 3 |
| ENGL 102 | Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ^{2,3} | 3 |
| ENGR 101 | Engineering Analysis I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ² | 4 |
| ENGR 102 | Engineering Analysis II | 4 |
| ENGR 110 | Engineering Methods, Tools, and Practice I | 2 |
| ENGR 111 | Engineering Methods, Tools and Practice II | 2 |
| ENGR 201 | Engineering Analysis III | 4 |
| ENGR 205 | Differential Equations for Engineering | 2 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) ² | 4 |

Minimum Total Hours 35

Program/Major Requirements

| Code | Title | Hours |
|--------------------------------------------------|-------------------------------------------------------------------|-------|
| Civil Engineering Department Requirements | | |
| CEE 205 | Mechanics I: Statics | 3 |
| CEE 254 | Mechanics of Solids | 3 |
| CEE 255 | Mechanics of Materials Laboratory | 1 |
| CEE 260 | Civil Engineering Field Measurements | 2 |
| CEE 261 | Civil Engineering Field Measurements Laboratory | 1 |
| CEE 288 | Civil and Environmental Engineering Cooperative Education Seminar | 0 |
| CEE 289 | Civil and Environmental Engineering Cooperative Education I | 1 |
| CEE 309 | Introduction to Environmental Engineering | 3 |
| CEE 322 | Structural Analysis | 3 |
| CEE 370 | Engineering Hydraulics | 3 |
| CEE 371 | Engineering Hydraulics Lab | 1 |

| | | |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| CEE 389 | Civil and Environmental Engineering Cooperative Education II | 1 |
| CEE 401 | Civil Engineering Professional Practice | 2 |
| CEE 421 | Fundamentals of Concrete Design | 3 |
| CEE 422 | Fundamentals of Steel Design | 3 |
| CEE 450 | Geomechanics | 3 |
| CEE 451 | Geomechanics Laboratory | 1 |
| CEE 452 | Foundation Engineering | 3 |
| CEE 460 | Transportation Systems Engineering | 3 |
| CEE 470 | Surface Water Hydrology | 3 |
| CEE 471 | Water Supply and Sewerage | 3 |
| CEE 480 | Civil & Environmental Engineering Capstone Design - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) (CUE) | 3 |

| | | |
|---------|---------------------------------------------|---|
| CEE 489 | Civil Engineering Cooperative Education III | 1 |
| CEE 530 | Construction Materials | 3 |

Civil Engineering Core

| | | |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| PHYS 295 | Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1 |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|

Minimum Total Hours **54**

| Code | Title | Hours |
|------|-------|-------|
|------|-------|-------|

Supporting Courses

| | | |
|----------|-----------------------------------------------|---|
| CHE 253 | Materials Science | 3 |
| ENVS 301 | Geology for Scientists and Engineers | 3 |
| ISE 360 | Probability and Statistics for Engineers | 3 |
| ISE 370 | Engineering Economic Analysis | 3 |
| ME 206 | Mechanics II: Dynamics | 3 |
| PHYS 299 | Introductory Electricity, Magnetism and Light | 4 |
| ENGR 151 | Engineering Graphics Technology | 1 |
| ENGR 307 | Numerical Methods for Engineering | 2 |

Minimum Total Hours **22**

Candidates for the Bachelor of Science degree must be in good standing (university GPA \geq 2.25) and must attain a grade point average of at least 2.25 for all courses used to satisfy degree requirements.

| Code | Title | Hours |
|------|-------|-------|
|------|-------|-------|

Culminating Undergraduate Experience (Graduation requirement)

| | | |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Requirement fulfilled by completing: | | |
| CEE 480 | Civil & Environmental Engineering Capstone Design - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | |

¹ To complete the degree in the minimum number of hours listed, some hours from the General Education Requirements must be satisfied by courses defined by the unit and/or program. Using other courses to satisfy General Education requirements will require additional hours to complete the degree requirements.

² This course is a General Education requirement for the program; see louisville.edu/provost/ger/ (<https://louisville.edu/provost/ger/>) for the listing, by academic year, of AH/D1/D2/SB/SBH Electives which satisfy the University-wide General Education requirements.

³ Students completing ENGL 105 in lieu of ENGL 101 or ENGL 102 satisfy the General Education and Engineering Fundamentals requirements

for Written Communication. However, an additional 3-hr Writing (WR) course or honors Written Communication (WC) course may be needed to satisfy program credit hour requirements.

Flight Plan

| Year 1 | | Hours |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Fall | | |
| CHEM 201 | General Chemistry I - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| CHEM 207 | Introduction to Chemical Analysis I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1 |
| ENGL 101 | Introduction to College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| ENGR 101 | Engineering Analysis I - QR (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 4 |
| ENGR 110 | Engineering Methods, Tools, and Practice I | 2 |
| General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective US Diversity - AHD1, SBD1, or SBHD1 | | 3 |
| Hours | | 16 |
| Spring | | |
| ENGL 102 | Intermediate College Writing - WC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| ENGR 102 | Engineering Analysis II | 4 |
| ENGR 111 | Engineering Methods, Tools and Practice II | 2 |
| PHYS 295 | Introductory Laboratories I - SL (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 1 |
| PHYS 298 | Introductory Mechanics, Heat and Sound - S (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 4 |
| Hours | | 14 |
| Summer | | |
| CEE 205 | Mechanics I: Statics | 3 |
| ENGR 151 | Engineering Graphics Technology | 1 |
| ENGR 201 | Engineering Analysis III | 4 |
| PHYS 299 | Introductory Electricity, Magnetism and Light | 4 |
| Hours | | 12 |
| Year 2 | | |
| Fall | | |
| CEE 254 | Mechanics of Solids | 3 |
| CEE 255 | Mechanics of Materials Laboratory | 1 |
| CEE 260 | Civil Engineering Field Measurements | 2 |
| CEE 261 | Civil Engineering Field Measurements Laboratory | 1 |
| CEE 288 | Civil and Environmental Engineering Cooperative Education Seminar | 0 |
| COMM 111 or COMM 112 | Introduction to Public Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) or Business and Professional Speaking - OC (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| ENGR 205 | Differential Equations for Engineering | 2 |
| ME 206 | Mechanics II: Dynamics | 3 |
| CHE 253 | Materials Science | 3 |
| Hours | | 18 |
| Spring | | |
| CEE 289 | Civil and Environmental Engineering Cooperative Education I | 1 |
| Hours | | 1 |

| | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Summer | | |
| CEE 309 | Introduction to Environmental Engineering | 3 |
| CEE 322 | Structural Analysis | 3 |
| ISE 360 | Probability and Statistics for Engineers | 3 |
| General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective - AH, SB, or SBH | | 3 |
| Hours | | 12 |
| Year 3 | | |
| Fall | | |
| CEE 389 | Civil and Environmental Engineering Cooperative Education II | 1 |
| Hours | | 1 |
| Spring | | |
| CEE 370 | Engineering Hydraulics | 3 |
| CEE 371 | Engineering Hydraulics Lab | 1 |
| CEE 460 | Transportation Systems Engineering | 3 |
| ENGR 307 | Numerical Methods for Engineering | 2 |
| ENVS 301 | Geology for Scientists and Engineers | 3 |
| General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective Global Diversity - AHD2, SBD2, or SBHD2 | | 3 |
| Hours | | 15 |
| Summer | | |
| CEE 489 | Civil Engineering Cooperative Education III | 1 |
| Hours | | 1 |
| Year 4 | | |
| Fall | | |
| CEE 401 | Civil Engineering Professional Practice | 2 |
| CEE 422 | Fundamentals of Steel Design | 3 |
| CEE 450 | Geomechanics | 3 |
| CEE 451 | Geomechanics Laboratory | 1 |
| CEE 470 | Surface Water Hydrology | 3 |
| ISE 370 | Engineering Economic Analysis | 3 |
| General Education: Cardinal Core Arts & Humanities, Social & Behavioral Sciences, or Social & Behavioral Sciences Historical Perspective - AH, SB, or SBH | | 3 |
| Hours | | 18 |
| Spring | | |
| CEE 421 | Fundamentals of Concrete Design | 3 |
| CEE 452 | Foundation Engineering | 3 |
| CEE 471 | Water Supply and Sewerage | 3 |
| CEE 480 | Civil & Environmental Engineering Capstone Design - CUE (https://catalog.louisville.edu/undergraduate/general-education-requirements/) | 3 |
| CEE 530 | Construction Materials | 3 |
| Hours | | 15 |
| Minimum Total Hours | | 123 |

another academic plan. Should you have questions about either report, please consult with your academic advisor.

Flight Planner

The Flight Planner tool is available for you to create a personalized Flight Plan to graduation. Advisors have access to review your Flight Planner and can help you adjust it to ensure you remain on track to graduate in a timely manner.

To create these reports:

1. Log into your ULink account.
2. Click on the Academic Progress tile.
3. Select the appropriate report.
 - a. To run a Degree Audit report, click on "View my Degree Audit."
 - b. To create a What-if report, click on "What-if Advisement Report."
 - c. To run a Flight Planner report, click on "Use My Flight Planner."

Click here to run a Degree Audit report, create a What-if report, or run a Flight Planner report. (<https://ulink.louisville.edu>)

The Flight Plan outlined above is intended to demonstrate one possible path to completing the degree within four years. Course selection and placement within the program may vary depending on course offerings and schedule, elective preferences, and other factors (study abroad, internship availability, etc.). Please consult your advisor for additional information about building a flight plan that works for you.

Degree Audit Report

Degree Audit reports illustrate how your completed courses fulfill the requirements of your academic plan, and which requirements are still outstanding. Degree audits also take transfer credits and test credits into account. "What-if" reports allow you to compare the courses you have completed in your current academic plan to the courses required in