



**CAL POLY**

Civil & Environmental Engineering  
COLLEGE OF ENGINEERING

# CIVIL ENGINEERING

Building 13, Room 266

805-756-2947

ceenve.calpoly.edu

## PROGRAM DESCRIPTION

Civil engineering includes a broad spectrum of mathematics, engineering and basic sciences, liberal arts, humanities and social sciences. The program includes a wide variety of courses created to develop proficiency within the breadth of the civil engineering sub-disciplines: geotechnical, construction, structural, transportation, environmental and water resources. Undergraduate students have opportunities to participate in world-class research aimed at improving both the built and natural environments. The culminating senior design experience takes place in a three-quarter real-world project that combines professional practice on current civil engineering design procedures, standards and design.

## OUR MISSION

To prepare students for successful careers in civil engineering by providing a high-quality, practice-oriented education that emphasizes design project experiences, hands-on laboratory activities and teamwork.



Cal Poly's Concrete Canoe Team earned first place at the American Society of Civil Engineers National Collegiate Championships in 2010, 2011, 2012, 2017 and 2018.



# CE

## ASSOCIATED CLUBS

Student clubs are an integral part of our department curriculum and give our students unique, hands-on opportunities to become successful and resourceful professionals in their fields. Clubs include:

- Cal Geo
- Cal Poly Concrete Canoe
- Cal Poly Rainworks
- Steel Bridge
- Chi Epsilon Honor Society
- Engineers for a Sustainable World
- Engineers Without Borders
- Institute of Transportation Engineers
- Society of Civil Engineers
- Society of Environmental Engineers
- Society of Women Engineers

## AREAS OF STUDY

The first three years of the degree program include a broad overview of all of the basic areas of civil engineering. During your final year, students will be able to choose one of the following areas of specialization:

- Construction Engineering
- General Civil Engineering
- Geotechnical Engineering
- Structural Engineering
- Transportation Engineering
- Water Resources Engineering

**637**  
undergraduate  
students

enrolled in  
civil engineering

**49**  
graduate  
students

enrolled in the blended  
B.S. and M.S. programs

**CIVIL  
ENGINEERING  
GRADUATES**

Our program maintains a strong reputation in the civil engineering and construction industries, making our graduates highly desirable. Civil engineering graduates are consistently recruited by top employers and work in planning, design, construction, research and education.



# B.S. IN CIVIL ENGINEERING

## Suggested Four-year Academic Flowchart • 2022-2026 Catalog

Updated 5/9/2022

| FRESHMAN  |   |   | SOPHOMORE  |   |   | JUNIOR  |   |  | SENIOR  |                             |   |  |  |  |
|---|---|---|--|---|---|---|---|--|---|-----------------------------|---|--|--|--|
| Fall  | Winter  | Spring  | Fall   | Winter  | Spring  | Fall  | Winter  | Spring   | Fall  | Winter                      | Spring  |  |  |  |
| Computer Aided Drafting in Civil Engineering<br><b>CE 113 (2)</b>         |   |   | Introductory Experiments in Transportation Engineering<br><b>CE 222 (1)</b>                        |   |   | Programming Applications in Engineering<br><b>CE 251 (2)</b><br><small>(CE 113; CE 204 or 208†; MATH 244)</small>   |   |  | Civil Engineering Professional Practice<br><b>CE 465 (1)</b><br><small>(Sr Standing and Instr. Consent)</small> |                             |   | Senior Design Project I and II<br><b>CE 466 (3)<sup>3</sup></b><br><small>(CE 321, 322, 336, 337, 355, 371, 381, 382, 465)</small> |  | <b>CE 467 (3)<sup>3</sup></b><br><small>(CE 466)</small> |
| Introduction to Civil Engineering<br><b>CE 111 (1)</b>                    | Design Principles in CE<br><b>CE 112 (2)</b>  |   |  | Mechanics of Materials I<br><b>CE 204 (3)<sup>1</sup></b><br><small>(ME 211)</small>                            | Mechanics of Materials II<br><b>CE 207 (2)<sup>1</sup></b><br><small>(CE 204)</small>   | Structural Engineering<br><b>CE 352 (4)</b><br><small>(CE 207 or CE 208; CE 251†)</small>   |   |  | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>                                     |                             | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small> | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>  |  |  |
|   | General Chemistry for Physical Science & Engineering I<br><b>CHEM 124 (4)</b><br><small>* [B1 &amp; B3]</small>   | General Chemistry for Physical Science & Engineering II<br><b>CHEM 125 (4)</b><br><small>(CHEM 124)</small>   | Engineering Statics<br><b>ME 211 (3)</b><br><small>(MATH 241†; PHYS 131 or 141)</small>            | Engineering Dynamics<br><b>ME 212 (3)</b><br><small>(MATH 241; ME 211 or ARCE 211)</small>                      | Civil Engineering Materials<br><b>CE 259 (2)</b><br><small>(CE 204 or 208†; CE 113†)</small>  | Reinforced Concrete Design<br><b>CE 355 (4)</b><br><small>(CE 259 &amp; 352)</small>  |   |  | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>                                     |                             | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small> | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>  |  |  |
| Calculus I<br><b>MATH 141 (4)</b><br><small>* [B4]</small>                | Calculus II<br><b>MATH 142 (4)</b><br><small>(MATH 141 w/min C- or Instr. Consent) [B4]</small>   | Calculus III<br><b>MATH 143 (4)</b><br><small>(MATH 142 w/min C- or Instr. Consent) [Area B Elective]</small> | Calculus IV<br><b>MATH 241 (4)</b><br><small>(MATH 143)</small>                                    | Linear Analysis I<br><b>MATH 244 (4)</b><br><small>(MATH 143)</small>   | Fundamentals of Transportation Engineering and Lab<br><b>CE 321 (3) &amp; CE 322 (1)</b><br><small>(PHYS 141; CE 259 or CM 113; CE 222; or graduate standing)</small> |   |   |  | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>                                     |                             | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small> | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>  |  |  |
| Engineering Surveying<br><b>BRAE 239 (4)</b><br><small>(MATH 119)</small> | General Physics I<br><b>PHYS 141 (4)</b><br><small>* [Area B Elective]</small>  | General Physics II<br><b>PHYS 142 (4)</b><br><small>(PHYS 141; MATH 142 or 182)</small>                       | General Physics III<br><b>PHYS 143 (4)</b><br><small>(PHYS 141; MATH 142. Recom: MATH 241)</small> | Materials Engineering<br><b>MATE 210 (3)</b><br><small>(CHEM 111, 124, or 127. Recom: MATE 215 concur.)</small> | Water Resources Engineering and Hydraulics Lab<br><b>CE 336 (4) &amp; CE 337 (1)</b><br><small>(ME 341 or ENVE 264)</small>   |   | Geotechnical Engineering and Lab<br><b>CE 381 (4) &amp; CE 382 (1)</b><br><small>(CE 207 or CE 208; ME 341 or ENVE 264. Concur: CE 382)</small> |  | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>                                     |                             | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small> | Approved Technical Elective<br><b>(4)<sup>3</sup></b><br><small>***</small>  |  |  |
|   | Oral Communication<br><b>COMS 101/102 (4)**</b><br><small>[A1]</small>  |   | General Physics III<br><b>PHYS 143 (4)</b><br><small>(PHYS 141; MATH 142. Recom: MATH 241)</small> | Materials Engineering<br><b>MATE 210 (3)</b><br><small>(CHEM 111, 124, or 127. Recom: MATE 215 concur.)</small> | Fluid Mechanics I<br><b>ME 341 (3)</b><br><small>(MATH 242 or 244; ME 212)</small>  | Construction Management and Project Planning<br><b>CE/CM 371 (4)</b><br><small>(ARCE 106, CE 259, or CM 113)</small>  |   | Fundamentals of Environmental Engineering<br><b>ENVE 331 (4)</b><br><small>(CHEM 125 or 128; MATH 242 or 244†)</small> |   |                             |   |  |  |  |
|   | Expository Writing<br><b>ENGL 133/134 (4)**</b><br><small>[A2]</small>  |   | Physical Geology<br><b>GEOL 201 (3)</b><br><small>(MATH 119)</small>                               | Materials Laboratory I<br><b>MATE 215 (1)</b><br><small>(MATE 210†)</small>                                     | Take concurrently:<br><b>BIO 213 (2) &amp; BMED 213 (2)</b><br><small>(MATH 142. Recom: CHEM 124) [B2]</small>  | Statistical Methods for Engineers<br><b>STAT 312 (4)*</b><br><small>[Upper-Division B]</small>  |   | Approved Engineering Science Elective<br><b>(2-4)<sup>3</sup></b><br><small>***</small>                                |   | GE (4)<br><small>**</small> |   |  |  |  |
| GE (4)<br><small>**</small>   | Reasoning, Argumentation, & Writing [A3]<br><b>COMS 126, 145, ENGL 145, 147, ES 145, PHIL 126, or WGQS 145 (4)**</b><br><small>(Completion of GE A2 with a C- or better)<br/>Can be taken anytime between Winter of Freshman and Winter of Sophomore Years.</small> |   |  |   | GE (4)<br><small>**</small>   | Approved Engineering Science Elective<br><b>(2-4)<sup>3</sup></b><br><small>***</small>   |   | GE (4)<br><small>**</small>  |   | GE (4)<br><small>**</small> |   | GE (4)<br><small>**</small>  |  |  |
|   |   |   |  |   |   | Graduation Writing Requirement <b>GWR*</b><br><small>(Students can attempt to fulfill the requirement after 90 earned units; students should complete the requirement before senior year)</small> |   |  |   | GE (4)<br><small>**</small> |   | GE (4)<br><small>**</small>  |  |  |
| 17  | 18  | 18  | 15   | 14  | 15  | 18  | 15-17   | 13   | 17  | 15                          | 15  |  |  |  |
|   |   |   |  |   |   |   |   |  |   | <b>TOTAL:</b>               |   | <b>190-192</b>   |  |  |

**Notes:**

**MOST GENERAL EDUCATION COURSES CAN BE TAKEN IN ANY ORDER AS LONG AS PREREQUISITES ARE MET**

\* Refer to current catalog for prerequisites.

\*\* One course from each of the following GE areas must be completed: A1, A2, A3, C1, C2, Lower-Division C Elective, Upper-Division C, D1, Area D Elective, Lower-Division E, & F. Upper-Division C should be taken only after Junior standing is reached (90 units).

Refer to online catalog for GE course selection, United States Cultural Pluralism (USCP) and Graduation Writing Requirement (GWR).

USCP requirement can be satisfied by some (but not all) courses within GE categories: C1, Upper-Division C, D1, D2, Upper-Division D, or E.

\*\*\* Refer to current catalog for course selection and guidelines for technical electives.

† Course can be taken previously or concurrently.

<sup>1</sup> Transfer students take CE 208 (5) in the Fall Quarter in place of both CE 204 (3) and CE 207 (2)

<sup>2</sup> 2-4 units Approved Engineering Science Elective. See catalog. No double-counting of coursework with other requirements. Consultation with advisor recommended.

<sup>3</sup> 24 units Technical Electives. See catalog for course options and additional guidelines.

**Legend:**

|  |  |                  |
|--|--|------------------|
| Course Title<br>Course # (Units)<br>(Prerequisite) |  | Major (72)       |
|  |  | Support (74-76)  |
| [GE Area]  |  | General Ed. (44) |

The intent of the Cal Poly Civil and Environmental Engineering Department is to provide broad preparation across all subdisciplines of civil engineering with opportunity to select additional technical electives to best match personal interests.