OSU Civil Engineering graduates receive a compelling education, and program educational objectives and student outcomes to support these.

Civil engineering is a diverse professional field with discipline specialties in structures, transportation, water supply and water pollution control, geotechnical engineering, hydrology, hydraulics and water resources, geomatics, ocean engineering, construction, and engineering planning and economics. All civil engineering students receive basic instruction in the various disciplines, with the option for additional elective courses in desired areas. The program is supported by highly qualified faculty and staff that maintain the programs and facilities at the highest level of quality.

The civil engineering curriculum within the School of Civil and Construction Engineering (CCE) includes the basic sciences, social sciences, humanities, communication skills, engineering sciences, and engineering design to teach students an integrated approach to finding practical solutions.

The mission of the civil engineering program is to provide a comprehensive, state-of-the-art education to prepare students for professional and responsible engineering positions with business, industry, consulting firms or government.

Program Educational Objectives—Civil Engineering

**Note:** The Bachelor of Science and Honors Bachelor of Science degrees in Civil Engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.ABET.org, which requires stated program educational objectives and student outcomes to support these.

OSU Civil Engineering graduates receive a compelling education, and within 3 to 5 years of graduation will have:

1. Assembled, analyzed and synthesized/evaluated information to solve engineering problems and perform modern civil engineering design by applying mathematics, engineering sciences and fundamentals of civil engineering.

2. Participated in modern professional practice or a graduate program in a specialty area of civil engineering, demonstrating effective communication, collaborative work and leadership in diverse teams, ethical decision-making, successful management of personal and professional career objectives, and continual development through lifelong learning and professional involvement.

3. Recognized the importance of professional licensure and have achieved or prepared to achieve this significant accomplishment. In this endeavor, consideration of the public health, welfare and safety is seen as the paramount priority.

4. Applied an understanding of public policy and contemporary societal issues with sensitivity to the challenge of meeting social, environmental, and economic constraints within a global community.

Design is the essence of civil engineering. Junior and senior level courses include extensive design content, culminating in a team approach to the solution of open-ended, realistic problems, including capstone design and professional practice courses. Courses with design content include those with ‘design’ in their titles. A more detailed explanation of the design experience and design course sequences is contained in the ‘Civil Engineering Advising Guide,’ which may be viewed on the school’s website (http://cce.oregonstate.edu/academic-advising/website).

**Major Code: 306**

- Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- 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.
- Communicate effectively with a range of audiences.
- 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.
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

A student may also earn a concurrent Bachelor of Arts (BA) or Honors Bachelor of Arts (HBA) degree by completing 32 additional credits in residence including language proficiency equivalent to that attained at the end of the second year of a foreign language as certified by the School of Language, Culture, and Society. Neither the BA nor the HBA degree in civil engineering is accredited by the Engineering Commission of ABET.

### Civil Engineering Undergraduate Major (BA, BS, HBA, HBS)

#### Credits

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCE 101</td>
<td>CIVIL AND CONSTRUCTION ENGINEERING ORIENTATION</td>
</tr>
<tr>
<td>CCE 102</td>
<td>CIVIL AND CONSTRUCTION ENGINEERING: PROBLEM-SOLVING AND TECHNOLOGY</td>
</tr>
<tr>
<td>CH 201</td>
<td>CHEMISTRY FOR ENGINEERING MAJORS</td>
</tr>
<tr>
<td>CH 202</td>
<td>CHEMISTRY FOR ENGINEERING MAJORS</td>
</tr>
<tr>
<td>CH 205</td>
<td>LABORATORY FOR CH 202</td>
</tr>
<tr>
<td>COMM 111</td>
<td><em>PUBLIC SPEAKING</em> or <em>ARGUMENT AND CRITICAL DISCOURSE</em></td>
</tr>
<tr>
<td>or COMM 114</td>
<td></td>
</tr>
<tr>
<td>ECON 201</td>
<td><em>INTRODUCTION TO MICROECONOMICS</em></td>
</tr>
<tr>
<td>HHS 231</td>
<td><em>LIFETIME FITNESS FOR HEALTH</em></td>
</tr>
<tr>
<td>HHS 241</td>
<td><em>LIFETIME FITNESS (or any PAC course)</em></td>
</tr>
<tr>
<td>MTH 251</td>
<td><em>DIFFERENTIAL CALCULUS</em></td>
</tr>
<tr>
<td>MTH 252</td>
<td>INTEGRAL CALCULUS</td>
</tr>
<tr>
<td>MTH 254</td>
<td>VECTOR CALCULUS I</td>
</tr>
<tr>
<td>PH 211</td>
<td><em>GENERAL PHYSICS WITH CALCULUS</em></td>
</tr>
<tr>
<td>WR 121</td>
<td><em>ENGLISH COMPOSITION</em></td>
</tr>
<tr>
<td><em>Perspectives: Literature and the Arts Course</em></td>
<td>3</td>
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<tr>
<td><strong>Credits</strong></td>
<td><strong>44-45</strong></td>
</tr>
</tbody>
</table>

#### Second Year

| Approved Biological Science Course | 4 |
| CCE 201 | CIVIL AND CONSTRUCTION ENGINEERING GRAPHICS AND DESIGN | 3 |
| CCE 207 | CCE SEMINAR | 1 |
CE 202  CIVIL ENGINEERING: GEOSPATIAL INFORMATION AND GIS  3
ENGR 211  STATICS  3
ENGR 212  DYNAMICS  3
ENGR 213  STRENGTH OF MATERIALS  3
MTH 256  APPLIED DIFFERENTIAL EQUATIONS  4
MTH 264  INTRODUCTION TO MATRIX ALGEBRA  2
MTH 265  INTRODUCTION TO SERIES  2
PH 212  *GENERAL PHYSICS WITH CALCULUS  8
& PH 213  and *GENERAL PHYSICS WITH CALCULUS
ST 314  INTRODUCTION TO STATISTICS FOR ENGINEERS  3
WR 327  *TECHNICAL WRITING  3
*Perspectives: Cultural Diversity Course  3
Credits  45

Third Year
CCE 321  CIVIL AND CONSTRUCTION ENGINEERING MATERIALS  4
CE 311  FLUID MECHANICS  4
CE 313  HYDRAULIC ENGINEERING  4
CE 361  SURVEYING THEORY  4
CE 372  GEOTECHNICAL ENGINEERING I  4
CE 373  GEOTECHNICAL ENGINEERING II  4
CE 381  STRUCTURAL THEORY I  8
& CE 382  and STRUCTURAL THEORY II
CE 392  INTRODUCTION TO HIGHWAY ENGINEERING  4
CE 412  HYDROLOGY  4
CE 481  REINFORCED CONCRETE I  4
ENVE 321  ENVIRONMENTAL ENGINEERING FUNDAMENTALS  4
Credits  48

Fourth Year
CE 383  DESIGN OF STEEL STRUCTURES  4
CE 418  *CIVIL ENGINEERING PROFESSIONAL PRACTICE  3
CE 419  *CIVIL INFRASTRUCTURE DESIGN  3
CE 420  ENGINEERING PLANNING  4
CE 491  TRANSPORTATION ENGINEERING  3
ENGR 201  ELECTRICAL FUNDAMENTALS I  3
*Difference, Power, and Discrimination  3
*Perspectives: Western Culture Course  3
*Synthesis: Contemporary Global Issues Course  3
*Synthesis: Science, Technology, and Society Course  3
Technical Electives  11
Credits  43

Total Credits  180-181

* Baccalaureate Core Course (BCC)
^ Writing Intensive Course (WIC)
1 Prerequisite for several upper-division courses. Recommended completion prior to upper division coursework
+ Must be selected to satisfy the requirements of the baccalaureate core

Civil Engineering-Forest Engineering
A five-year dual-degree program in civil engineering and forest engineering is offered jointly by the School of Civil and Construction Engineering in the College of Engineering and Forest Engineering in the College of Forestry. Advising is done through either academic unit. See Forest Engineering, Resources and Management in the College of Forestry.

Geomatics (Surveying and Mapping)
Graduates of civil engineering are eligible to take the Fundamentals of Land Surveying Examination in pursuit of the Professional Land Surveying license by selecting courses as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 361</td>
<td>SURVEYING THEORY</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select 12 credits from the following:</td>
<td>12</td>
</tr>
<tr>
<td>CE 365</td>
<td>HIGHWAY LOCATION AND DESIGN</td>
<td></td>
</tr>
<tr>
<td>CE 461/CE 561</td>
<td>PHOTOGRAMMETRY</td>
<td></td>
</tr>
<tr>
<td>CE 463/CE 563</td>
<td>CONTROL SURVEYING</td>
<td></td>
</tr>
<tr>
<td>CE 465/CE 565</td>
<td>OREGON LAND SURVEY LAW</td>
<td></td>
</tr>
<tr>
<td>CE 469/CE 569</td>
<td>PROPERTY SURVEYS</td>
<td></td>
</tr>
<tr>
<td>CE 562</td>
<td>DIGITAL TERRAIN MODELING</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits  16

Major Code: 306