Structural Design and Construction Engineering Technology, B.S.

Begin Campus: Any Penn State Campus
End Campus: Harrisburg

Degree Requirements

For the Bachelor of Science degree in Structural Design and Construction Engineering Technology, a minimum of 125 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Electives</td>
<td>0-8</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>96-106</td>
</tr>
</tbody>
</table>

24 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GS courses; 3 credits of GWS courses; 3 credits of GHW courses.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Common Requirements for the Major (All Options)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribed Courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CET 308</td>
<td>Construction Methods and Materials</td>
<td>3</td>
</tr>
<tr>
<td>CET 342</td>
<td>Civil Engineering Materials - Concrete and Bituminous</td>
<td>3</td>
</tr>
<tr>
<td>CET 343</td>
<td>Soils Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CET 434</td>
<td>Foundations</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>ET 200</td>
<td>Graphic Communications</td>
<td>3</td>
</tr>
<tr>
<td>SSET 295</td>
<td>Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

Prescribed Courses: Require a grade of C or better

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CE 254</td>
<td>Personal &amp; Occupational Safety</td>
<td>3</td>
</tr>
<tr>
<td>CE 333W</td>
<td>Construction Management I</td>
<td>3</td>
</tr>
<tr>
<td>CET 430</td>
<td>Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CET 431</td>
<td>Structural Design-Steel</td>
<td>3</td>
</tr>
<tr>
<td>CET 432</td>
<td>Structural Design-Reinforced Concrete</td>
<td>3</td>
</tr>
<tr>
<td>CET 435</td>
<td>Construction Estimating</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 202C</td>
<td>Effective Writing: Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 310</td>
<td>Surveying</td>
<td>3-4</td>
</tr>
</tbody>
</table>

or SUR 111 Plane Surveying
ET 323 Strength of Materials Laboratory
or MET 214 Strength and Properties of Materials Laboratory
Select 3 credits from the following: 3
EGT 102 Introduction to Computer Aided Drafting
& EGT 201 and Advanced Computer Aided Drafting
EDSGN 100 Cornerstone Engineering Design
Select 3-4 credits from the following: 3-4
PHYS 150 Technical Physics I
PHYS 211 General Physics: Mechanics
PHYS 250 Introductory Physics I
Select 3-4 credits from the following: 3-4
PHYS 151 Technical Physics II
PHYS 212 General Physics: Electricity and Magnetism
PHYS 251 Introductory Physics II
Select 3 credits from the following: 3
ECON 14 Principles of Economics
ECON 102 Introductory Microeconomic Analysis and Policy
ECON 104 Introductory Macroeconomic Analysis and Policy
Select 3 credits from the following: 3
CMPSC 101 Introduction to Programming
CMPSC 121 Introduction to Programming Techniques
CMPSC 201 Programming for Engineers with C++
Select 3-4 credits from the following: 3-4
ACCTG 211 Financial and Managerial Accounting for Decision Making
MGMT 100 Survey of Management
MGMT 301 Basic Management Concepts

Additional Courses: Require a grade of C or better

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<tr>
<th>Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>Calculus with Analytic Geometry II</td>
<td>4</td>
</tr>
<tr>
<td>or STAT 200</td>
<td>Elementary Statistics</td>
<td></td>
</tr>
<tr>
<td>Select 3 credits from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EMCH 211</td>
<td>Statics</td>
<td></td>
</tr>
<tr>
<td>ET 300</td>
<td>Mechanics I: Statics (does not require a grade of C or better)</td>
<td></td>
</tr>
<tr>
<td>MET 111</td>
<td>Mechanics for Technology: Statics</td>
<td></td>
</tr>
<tr>
<td>Select 3 credits from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EMCH 213</td>
<td>Strength of Materials</td>
<td></td>
</tr>
<tr>
<td>ET 322</td>
<td>Strength of Materials</td>
<td></td>
</tr>
<tr>
<td>MET 213</td>
<td>Strength and Properties of Materials</td>
<td></td>
</tr>
</tbody>
</table>

Requirements for the Option

Select an option 19-25

Construction Management Option (19-21 credits)

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<tr>
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<tbody>
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Prescribed Courses: Require a grade of C or better

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<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CE 456</td>
<td>Planning and Scheduling</td>
<td>3</td>
</tr>
<tr>
<td>CE 458</td>
<td>Construction Management II</td>
<td>3</td>
</tr>
<tr>
<td>CE 488C</td>
<td>Capstone Project - Construction</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional Courses

Select 3-4 credits from the following: 3-4
### Structural Design Option (19-20 credits)

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<tr>
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<tbody>
<tr>
<td>ACCTG 211</td>
<td>Financial and Managerial Accounting for Decision Making</td>
<td></td>
</tr>
<tr>
<td>MGMT 100</td>
<td>Survey of Management</td>
<td></td>
</tr>
<tr>
<td>MGMT 301</td>
<td>Basic Management Concepts</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits from the following:

| AE 310 | Fundamentals of Heating, Ventilating, and Air Conditioning | 3       |
| CE 321 | Highway Engineering                                      |         |
| ENVE 430 | Sustainable Engineering                            |         |
| MET 435 | Building Energy Systems                                |         |

### General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

#### Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

#### Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

#### Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

#### Exploration

- **GN:** may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses:** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

### University Degree Requirements

#### First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

#### Cultures Requirement

6 credits are required and may satisfy other requirements

- **United States Cultures:** 3 credits
- **International Cultures:** 3 credits

#### Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

#### Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits.
Students should consult with their college or department adviser for information on specific credit requirements.

**Quality of Work**
Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

**Limitations on Source and Time for Credit Acquisition**
The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.