

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:

Requirement	Credits
General Education	45
Electives	0-8
Requirements for the Major	96-106

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)

Code	Title	Credits
Prescribed Courses		
CET 308	Construction Methods and Materials	3
CET 342	Civil Engineering Materials - Concrete and Bituminous	3
CET 343	Soils Mechanics	3
CET 434	Foundations	3
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
ET 200	Graphic Communications	3
SSET 295	Internship	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 254	Personal & Occupational Safety	3
CE 333W	Construction Management I	3
CET 430	Structural Analysis	3
CET 431	Structural Design-Steel	3
CET 432	Structural Design-Reinforced Concrete	3
CET 435	Construction Estimating	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
Additional Courses		
CE 310	Surveying	3-4

or SUR 111	Plane Surveying	
ET 323	Strength of Materials Laboratory	1
or MET 214	Strength and Properties of Materials Laboratory	
Select 3 credits from the following:		3
EGT 102 & EGT 201	Introduction to Computer Aided Drafting 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	
<i>Additional Courses: Require a grade of C or better</i>		
MATH 141	Calculus with Analytic Geometry II	4
or STAT 200	Elementary Statistics	
Select 3 credits from the following:		3
EMCH 211	Statics	
ET 300	Mechanics I: Statics (does not require a grade of C or better)	
MET 111	Mechanics for Technology: Statics	
Select 3 credits from the following:		3
EMCH 213	Strength of Materials	
ET 322	Strength of Materials	
MET 213	Strength and Properties of Materials	
Requirements for the Option		
Select an option		19-25
Requirements for the Option		
Construction Management Option (19-21 credits)		
Code	Title	Credits
Prescribed Courses		
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 456	Planning and Scheduling	3
CE 458	Construction Management II	3
CE 488C	Capstone Project - Construction	4
Additional Courses		
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	
Select 3 credits from the following:		3
AE 310	Fundamentals of Heating, Ventilating, and Air Conditioning	
CE 321	Highway Engineering	
ENVE 430	Sustainable Engineering	
MET 435	Building Energy Systems	

Supporting Courses and Related Areas

Select 3-4 credits from approved program list 3-4

General Option (25 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

CE 445	Advanced Structural Analysis	3
CE 449	Advanced Structural Design	3
CE 456	Planning and Scheduling	3
CE 458	Construction Management II	3

Additional Courses

ET 321	Dynamics	3
or EMCH 212	Dynamics	
CE 360	Fluid Mechanics	3
or CET 361	Fluid Flow	

Select 3 credits from the following: 3

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

Additional Courses: Require a grade of C or better

CE 488C	Capstone Project - Construction	4
or CE 488D	Capstone Project - Structural Design	

Structural Design Option (19-20 credits)

Code	Title	Credits
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Prescribed Courses

Prescribed Courses: Require a grade of C or better

CE 445	Advanced Structural Analysis	3
CE 449	Advanced Structural Design	3
CE 488D	Capstone Project - Structural Design	4

Additional Courses

CET 361	Fluid Flow	3
or CE 360	Fluid Mechanics	
ET 321	Dynamics	3
or EMCH 212	Dynamics	

Supporting Courses and Related Areas

Select 3-4 credits from approved program list 3-4

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.