

# Bachelor of Science in Structural Design and Construction Engineering Technology

School of Science, Engineering, and Technology  
**Joseph J. Cecere, Ph.D., CPC**  
Program Chair

The program in Structural Design and Construction Engineering Technology (SDCET) provides the basic education required for the structural engineer and construction profession. Students learn the basic general engineering concepts needed for this major with emphasis on the fundamentals, structural design principles, and construction techniques through required course work.

Students are given the opportunity to focus in a discipline of construction management or structural design through a selected option or choose a broad general option. Courses in communication skills, arts, humanities, social and behavioral sciences, and other engineering related areas broaden the program. Students gain experience in working as members of a team and in using interdisciplinary approaches to solve problems. These experiences, as well as those related to design and construction principles, are taught through exercises in the classroom, laboratory, and field. The program culminates with a capstone project course in which the students' knowledge and skills are applied to specific problems.

For the B.S. degree in SDCET, a minimum of 125 credits is required. At least 52 of these credits must be completed at Penn State Harrisburg, with an overall GPA of 2.0, a technical GPA of 2.0, and a grade of "C" or better in specific courses.

## Degree Program Options

### Construction Management (CM)

The CM option prepares students for a challenging and rewarding career in management within the construction industry. This option provides students with additional knowledge to organize and manage people, materials, and processes of construction, utilizing the latest technologies within the industry. The option requires courses in Planning and Scheduling, Construction Management II, Fundamentals of HVAC, Business, and the Construction Management Capstone Project, which integrates major courses with a construction management focus.

### Structural Design (SD)

The SD option prepares students for a promising career in the engineering world. This option provides students with additional knowledge to analyze or design various structural systems based on the current standards of practice. The option courses include: Advanced Structural Analysis, Advanced Structural Design, Dynamics, Fluid Flow, and the Structural Design Capstone Project.

### General Option

The general option is not focused in a specified area; students broaden their knowledge in both the structural design and construction management areas beyond the core curriculum. The option courses include: Advanced Structural Analysis, Advanced Structural Design, Planning and Scheduling, Construction Management II, Fundamentals of HVAC, Fluid Flow, and either the Structural Design or Construction Management Capstone Project.

## Selection of Major in Engineering or Engineering Technology

Excellent guidance for students, parents, friends, and others regarding the similarities and differences between engineering and engineering technology is provided at [TryEngineering.org](http://TryEngineering.org) [1].

## Career Opportunities

Penn State Harrisburg's SDCET program is designed to prepare students for a career in the highly specialized construction industry. The program requirements allow for flexible scheduling, enabling students to focus their specialization in either construction or design. Study through these options could lead to opportunities as structural designers for bridges, buildings, or other projects or as project managers for commercial construction projects. Career options may also be available in government for state and federal highway projects and with construction firms in the specialty areas of scheduling, estimating, and cost control. Finally, opportunities may exist for graduates to pursue opportunities as designers, owners, or contractor representatives.

## Job Titles

Prospective job titles include: Construction Manager, Construction Engineer, Designer, Estimator, Geotechnical Engineer, Project Engineer, Project Manager, Scheduler, Structural Engineer, Superintendent, and Transportation Engineer.

## Job Outlook

The U.S. Bureau of Labor Statistics expects excellent employment opportunities in the construction

## Accreditation

**ABET - Engineering Technology Accreditation Commission**



## Ranking



## For more information

- 717-948-6250
- [hbgadmit@psu.edu](mailto:hbgadmit@psu.edu)
- [hbg.psu.edu](http://hbg.psu.edu)



Please note: This page is not a part of the official Penn State *University Bulletin*. The official Penn State *University Bulletin* for undergraduate programs can be found at <http://bulletins.psu.edu/bulletins/bluebook/>

Penn State is committed to affirmative

industry through 2016. Penn State Harrisburg graduates in Structural Design and Construction Engineering Technology have had impressive job placements in the last eight years.

## Career Services and Career Fairs

[Penn State Harrisburg Career Services](#) [2] is a valuable resource for any student who is involved in a job search, providing help in resume writing, cover letter preparation, techniques and mock interviews, contact information for companies, job announcements, and interview facilities. Because it is part of [University Career Services](#) [3], students have access to extensive resources. Job announcements are open to all registered Penn State students, and interviews can be conducted through University technology services from any of the PSU campuses. Career Services is also available to alumni who are seeking career moves.

Each fall, the SDCET Program hosts its own career fair. Firms participating in the fair inform students about their companies and career opportunities, connect with individual students, and collect resumes from graduating seniors as well as underclassmen. Individual interviews may be conducted on campus the following day or off campus at business locations. The participating companies are primarily located in Pennsylvania and the Mid-Atlantic region, but several of them have national and international offices.

SDCET majors are also invited to participate in both the [Civil Engineering](#) [4] and [Architectural Engineering](#) [5] Career Fairs at University Park.

## Networking

The SDCET Advisory Board holds an annual networking event in the spring which is open to SDCET majors. The event provides contact with alumni, company representatives, advisory board members, and friends of the Program. Some companies have sent representatives to this event for the specific purpose of discussing career opportunities with students.

The SDCET faculty serve as another excellent resource for students. Their experiences in education and within private industry, along with their connections with professional associations, can assist students with career choices. The faculty can provide valuable insight into their professions and help guide students' decision making regarding internship or job opportunities.

## Accreditation and Licensure

This program is accredited by the Engineering Technology Accreditation Commission of ABET, [www.abet.org](http://www.abet.org) [6].

SDCET graduates who wish to continue their professional development are qualified to take the Fundamentals of Engineering (FE) Examination in Pennsylvania. Graduates are also qualified to take the first level Professional Constructor Certificate Examination (APC).

## Student Organizations

Penn State Professional Engineers and Contractors ([PSPEC](#) [7]) is the student organization for SDCET majors. It is the umbrella program for three student chapters affiliated with their national organizations: Associated Builders and Contractors ([ABC](#) [8]), Associated General Contractors of America ([AGC](#) [9]), and the National Society of Professional Engineers ([NSPE](#) [10]). PSPEC stimulates professional growth and facilitates networking opportunities for students who frequently interact with professionals through guest speakers on a variety of topics, field trips to construction sites and offices, and participation at professional, regional, and national conferences. PSPEC is also involved in service activities serving the College and nearby communities.

The Society of Women Engineers ([SWE](#) [11]) is an organization established in 1950 to encourage and support the advancement of women in the engineering field. SWE offers many networking opportunities, scholarships, and awards for recognizing women for their contributions as professional engineers.

## Professional Organizations

Students are encouraged to join professional organizations to further advance their knowledge in the field and for networking opportunities. Most organizations provide great offers to college students.

- [American Concrete Institute \(ACI\)](#) [12]
- [American Institute of Constructors \(AIC\)](#) [13]
- [American Institute of Steel Construction \(AISC\)](#) [14]
- [American Society of Civil Engineers \(ASCE\)](#) [15]

## Scholarship Opportunities

In addition to the traditional types of financial aid offered by Penn State, outstanding undergraduate SDCET students may qualify for scholarships, including:

- [ACI Foundation Fellowships & Scholarships](#) [16]
- [AGC Foundation Scholarships](#) [17]
- [AISC Education Foundation Scholarships](#) [18]
- [ASNT Engineering Undergraduate Award](#) [19]
- [Eugene C. Figg, Jr. Civil Engineering Scholarship](#) [20]
- [Keystone Chapter of Associated Builders and Contractors Scholarship](#) [21]
- [NPCAEF Scholarship](#) [22]
- [Susquehanna Chapter of Association of Bridge Construction & Design Scholarship](#) [23]
- [SWE Scholarships](#) [24]

## Graduate Studies

Students interested in graduate studies may pursue a [Master of Engineering in Engineering Science](#) [25]. The program is designed to provide a broad, advanced education in the engineering sciences with some specialization permitted in the area of the student's major interest. It is offered specifically to permit practicing engineers to pursue advanced studies through evening classes while in full-time

action, equal opportunity, and the diversity of its workforce.

Content reviewed and approved:  
May, 29 2012 4 am EDT

**Program Enrollment and Graduation Statistics**

Enrollments, by Year

	2008	2009	2010	2011	2012	2013
<b>Enrolled Students</b>	98	102	103	81	51	53

Degrees Awarded, by Semester

	FA08	SP09	SU09	FA09	SP10	SU10	FA10	SP11	SU11	FA11	SP12	SU12	FA12	SP13	SU13	FA13
<b>Degrees</b>	4	30	2	3	21	5	5	30	4	8	26	1	5	13	0	6

**Documents**

- [Prerequisite Flowchart](#) [26] (program planning tool)

**This page is not a part of the official Penn State University Bulletin.**

**Links:**

- [1] [http://www.tryengineering.org/ask\\_faq.php?show=406&cat=stu&qtype=Degree+Fields&page=](http://www.tryengineering.org/ask_faq.php?show=406&cat=stu&qtype=Degree+Fields&page=)
- [2] <http://hbg.psu.edu/careers/>
- [3] <http://studentaffairs.psu.edu/career/>
- [4] <http://www.engr.psu.edu/asce/>
- [5] [http://www.engr.psu.edu/ae/job\\_placement/index.asp?p=0.10.0.0](http://www.engr.psu.edu/ae/job_placement/index.asp?p=0.10.0.0)
- [6] <http://www.abet.org>
- [7] <http://harrisburg.psu.edu/professional-engineers-and-contractors>
- [8] <http://www.abc.org/>
- [9] <http://www.agc.org/>
- [10] <http://www.nspe.org/>
- [11] <http://societyofwomenengineers.swe.org/>
- [12] <http://www.concrete.org/STUDENTS/stu.htm>
- [13] <http://www.professionalconstructor.org/AIC/BecomeaMember/>
- [14] <http://www.aisc.org/content.aspx?id=752>
- [15] <https://join.asce.org/default.aspx>
- [16] [http://www.concrete.org/STUDENTS/st\\_scholarships.htm](http://www.concrete.org/STUDENTS/st_scholarships.htm)
- [17] [http://www.agc.org/cs/career\\_development/foundation/scholarships](http://www.agc.org/cs/career_development/foundation/scholarships)
- [18] <http://www.aisc.org/content.aspx?id=716>
- [19] <http://www.asnt.org/keydocuments/awards/engineering.htm>
- [20] <http://www.asce.org/Content.aspx?id=2147489750>
- [21] [http://www.abckeystone.com/Hot\\_Links/Scholarship.aspx](http://www.abckeystone.com/Hot_Links/Scholarship.aspx)
- [22] <http://precast.org/foundation/#apply>
- [23] <http://harrisburg.psu.edu/programs/bachelor-science-structural-design-and-construction-engineering-technology>
- [24] [http://societyofwomenengineers.swe.org/index.php?option=com\\_content&task=view&id=222&Itemid=229](http://societyofwomenengineers.swe.org/index.php?option=com_content&task=view&id=222&Itemid=229)
- [25] <http://harrisburg.psu.edu/programs/master-engineering-engineering-science>
- [26] [http://harrisburg.psu.edu/sites/default/files/sdcet\\_courses\\_flow\\_chart.pdf](http://harrisburg.psu.edu/sites/default/files/sdcet_courses_flow_chart.pdf)