

# ENGINEERING DESIGN, CERTIFICATE

Requirements for an undergraduate certificate may be completed at any campus location offering the specified courses for the certificate.

## Program Description

The certificate provides an opportunity to pursue a specialization in engineering design; offering an incentive to take more courses in design and participate in more design projects, thereby improving employment prospects. Students must earn a C grade or better in each prescribed or additional course or independent study or pursue a replacement option. A minimum of 7 credits of required courses and an additional 6 credits of supporting courses minimum (at 400-level or above) are needed for completion of the certificate.

## What is Engineering Design?

Engineering Design is based on the concept of integrating ideas, disciplines, people, and resources within engineering and beyond that are necessary to achieve optimal design solutions for products, systems, processes, and services.

## You Might Like This Program If...

- You are interested in learning about new design methods.
- You would like to learn more about interdisciplinary applications of design such as sustainability, innovative design, design for human variability, global design, and affective design.
- You are interested in interdisciplinary integrated design involving two or more distinct fields of knowledge.
- You would like to develop a portfolio of your design projects.

## Program Requirements

To earn an undergraduate certificate in Engineering Design, a minimum of 13 credits is required.

Code	Title	Credits
<b>Prescribed Courses</b>		
EDSGN 100	Cornerstone Engineering Design	3
EDSGN 367	Design Thinking and Making	3
EDSGN 485	Engineering Design Portfolio	1
<b>Supporting Courses</b>		
	In addition to the required courses, students must take a minimum of 6 credits of supporting courses, such as EDSGN 4XX or other 400-level courses with approval from the Certificate Director. <sup>1</sup>	6

<sup>1</sup> With approval from the Certificate Director, any course of 3 credits or more at the 400-level or above that can be shown to have a majority of content devoted to engineering design projects, and that has been completed with a semester grade of at least C, can be counted towards the certificate's 6 credits of supporting courses.

## Non-Course Requirements

No fewer than 6 credits of supporting courses must be completed at the 400-level or above. Up to 3 of these credits may be obtained through pre-approved co-op (400-level) experiences that are primarily design work. Other examples of courses that would satisfy the certificate (in addition

to the prescribed courses include any of the EDSGN 400 level courses offered by the School of Engineering Design and Innovation. In addition, the Director of the Certificate will maintain a list of courses that have been approved previously for the certificate.

## Certificate Learning Objectives

- Students will demonstrate an application of an iterative design process to conceptualize and prototype an innovative solution to an engineering problem.
- Students will critically define a problem and evaluate appropriateness of proposed solutions, considering users of an intended design and other stakeholders affected by a designed intervention.
- Students will document the progressive stages of their work, not only within various single projects, but also indicating increased sophistication and responsibility in their roles from one project to the next, in a portfolio suitable for presentation to a professional engineering practice as evidence of experience and competencies.

## Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in- and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

## University Park

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## Career Paths

### Careers

Penn State students with a Certificate in Engineering Design have been successful in establishing careers in a wide variety of engineering, research, and education fields.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A CERTIFICATE IN ENGINEERING DESIGN (<https://career.engr.psu.edu/>)

## Opportunities for Graduate Studies

Students interested in advancing their Engineering Design knowledge may be interested in the School of Engineering Design and Innovation's graduate offerings in Engineering Design or Engineering Leadership

and Innovation Management or numerous other advanced engineering studies offered by the College of Engineering.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES  
(<https://www.sedi.psu.edu/academics/graduate/>)

## Contact

### University Park

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