

# ENGINEERING DESIGN, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

## Program Description

To address design responsibilities necessary for engineering graduates, the engineering design minor develops design skills in students through a series of core project-based design courses supplemented by general electives in their discipline or related field. Through team-based projects, students apply engineering design processes to address design opportunities, from exploration of the problem space through exploration of the solution space. By focusing on different elements of a design process (e.g., defining and exploring the problem vs. identifying, prototyping, and evaluating design solutions), but covering in totality, the minor's courses complement each other and provide students with a deeper understanding of engineering design. Specific areas of emphasis in this minor include problem framing, stakeholder engagement, human-centered design, rapid prototyping, prototyping to validate assumptions, systems-level design and professional communication. The tools and techniques developed in this minor should be broadly applicable to various engineering disciplines.

## 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.

## Entrance to Minor

For admission into the minor, students must have completed EDSGN 100 and EDSGN 367.

## Program Requirements

Requirement	Credits
Requirements for the Minor	18

## Requirements for the Minor

A minimum of 18 credits is required for completion of the minor with no fewer than 9 credits at the 400-level or above.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
EDSGN 100	Cornerstone Engineering Design	3
EDSGN 367	Design Thinking and Making	3
EDSGN 467	Prototyping to Launch	3
EDSGN 485	Engineering Design Portfolio	1
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6-8 credits from the following courses:		6-8
EDSGN 270	Summers by Design: An International Engineering Design Experience	
EDSGN 452	Projects in Humanitarian Engineering	
EDSGN 453	Design for Developing Communities	
EDSGN 462	Introduction to Design for Additive Manufacturing	
EDSGN 468	Engineering Design and Analysis with CAD	
EDSGN 494	Research Project	
EDSGN 496	Independent Studies	
ENGR/WFED 405	Project Management for Professionals	
ENGR 310	Entrepreneurial Leadership	
ENGR 407	Technology-Based Entrepreneurship	
ENGR 408	Leadership Principles	
ENGR 409	Leadership in Organizations	
ENGR 422	Leadership of International Virtual Engineering Teams	

## Supporting Courses and Related Areas

*Supporting Courses and Related Areas: Require a grade of C or better*

None specified. In consultation with the minor director, students may receive up to 2 course credits for an approved course in support of their engineering design minor.

## 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 Minor 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 MINOR 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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