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

Program Description
The certificate will provide an opportunity to pursue a specialization in engineering design; provide an incentive to take more courses in design, participating in more design projects; and improve their employment prospects. Students must earn a B grade or better in each qualifying course or independent study or pursue a replacement option. A minimum of 13 credits is required for completion of the certificate with no fewer than 6 credits at the 400- or 500-level.

What is Engineering Design?
Engineering Design is based on the concept of integrated engineering design - the integration of the 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.

Admission Requirements
For entrance, students must be at least 4th semester standing. The GPA considered for admission will be consistent with, or equivalent to, the GPA required for entrance to any major in the student’s department.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribed Courses</td>
<td></td>
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<tr>
<td>EDSGN 100</td>
<td>Cornerstone Engineering Design</td>
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<tr>
<td>or MATSE 492W</td>
<td>Materials Engineering Methodology and Design</td>
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<td>EDSGN 496</td>
<td>Independent Studies</td>
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<td>Select 3 credits from the following:</td>
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<tr>
<td>AE 470</td>
<td>Residential Building Design and Construction</td>
<td>3</td>
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<tr>
<td>BE 467</td>
<td>Design of Stormwater and Erosion Control Facilities</td>
<td></td>
</tr>
<tr>
<td>BME 419</td>
<td>Artificial Organs and Prosthetic Devices</td>
<td></td>
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<td>Select 3 credits from the following:</td>
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<td>CE 410W</td>
<td>Sustainable Residential Land Development</td>
<td></td>
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<tr>
<td>ESC 481</td>
<td>Elements of Nano/Micro-electromechanical Systems Processing and Design</td>
<td></td>
</tr>
<tr>
<td>IE 466</td>
<td>Concurrent Engineering</td>
<td></td>
</tr>
</tbody>
</table>

Students must complete an application and be at least 4th semester standing. No fewer than 6 credits of certificate courses at the 400- or 500-level.

Students must earn a “B” or better in each qualifying course.

Prerequisites Required.

Certificate Learning Objectives
Students who complete the Engineering Design Certificate will be able to:

1. plan a hands-on project requiring the coordination of multiple disciplines in order to broadly conceptualize and iteratively prototype an innovative resolution to an engineering problem
2. demonstrate a comprehensive understanding of the following:
   a. a range of design processes and their possible outcomes;
   b. data collection methods and interpretations regarding users of an intended design and other stakeholders affected by a designed intervention;
3. 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 (http://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 (http://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, Technology, and Professional Programs’ 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 (http://www.sedtapp.psu.edu/eld/graduate-degrees.aspx)

Contact

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SCHOOL OF ENGINEERING DESIGN, TECHNOLOGY, AND PROFESSIONAL PROGRAMS
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