PRODUCT REALIZATION, 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
This 21-credit interdisciplinary minor is designed for any engineering student who is interested in state-of-the-art practice in integrated product/process design and manufacturing. The program culminates with a one-semester project involving the design and manufacture of a new product.

The purpose of the minor is to offer students state-of-the-art practice in integrated product/process design and manufacturing. Students completing the minor should:

- understand the interaction of design and manufacturing through practical examples;
- be familiar with the entrepreneurial skills needed to transfer a new product from initial idea to market;
- understand the technical and management aspects of concurrent engineering and total quality management; and
- have hands-on experience in designing and manufacturing a product, organizing and managing the effort, and interacting with the customer.

You Might Like This Program If...
You are an engineering student interested in hands-on, state-of-the-art practice in integrated product/process design and manufacturing.

Program Requirements

<table>
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<th>Requirement</th>
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<td>Requirements for the Minor</td>
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Requirements for the Minor
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).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENGR 407</td>
<td>Technology-Based Entrepreneurship</td>
<td>3</td>
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<tr>
<td>IE 466</td>
<td>Concurrent Engineering</td>
<td>3</td>
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<td>ME 240</td>
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<td>3</td>
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Additional Courses
Additional Courses: Require a grade of C or better
Select 9 credits in Product Design, Quality Engineering, and Manufacturing Processes courses approved by the professor in charge of the minor (Dr. Simpson)

Example courses include:
- EE 310 Electronic Circuit Design I
- EE 441 Semiconductor Integrated Circuit Technology
- IE 305 Product Design, Specification and Measurement
- IE 306 Machining Process Design & Analysis
- IE 311 Principles of Solidification Processing
- IE 312 Product Design and Manufacturing Processes
- IE 424 Process Quality Engineering
- IE 428 Metal Casting
- ME 340 Mechanical Engineering Design Methodology
- ME 445 Microcomputer Interfacing for Mechanical Engineers

Select a 3-credit senior project: team-based design or industrial projects course, as approved by the coordinator

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/)

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http://www.ime.psu.edu/index.aspx (http://www.ime.psu.edu/)