



# ENR 313 Product Development and Management

Winter 2024

**Course Credits:** 4

**Contact Hours:** 56 hours

**Instructor:** TBA

**Email:** TBA

## **COURSE OBJECTIVES**

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This course serves as an insightful introduction to the principles of product development and management, specifically tailored for engineers and computer scientists. The curriculum delves into the multifaceted realm of engineering practice, exploring its profound impact on social and economic dimensions. Participants will engage in a dynamic learning experience, acquiring essential skills and knowledge to navigate the intricate landscape of creating, managing, and bringing innovative products to market.

Upon Completion of this Course, students will be able to:

1. Gain a comprehensive understanding of the principles and methodologies involved in product development, with a focus on hands-on and team-based learning;
2. Develop and apply creative thinking skills to foster innovation in the product development process, exploring methods to generate and evaluate new ideas;
3. Explore project management techniques and tools tailored to engineering projects;
4. Develop the ability to assess market needs, identify target audiences, and conduct market research to inform product development decisions, ensuring alignment with market demands.

## **PREREQUISITES**

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CEN 110 Introduction to Engineering Design

## **GRADING**

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Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
3 Quizzes	30 Points
2 Labs	20 Points
Midterm Exam	20 Points
Final Exam	30 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$ .

We reserve the right to make adjustments to the overall grading policy.

## COURSE MATERIALS

### **Required Texts:**

Karl Ulrich, *Product Design and Development*, 7th Edition, McGraw-Hill Higher Education, 2020.

### **Recommended (Optional) Texts or Other Materials:**

None

## COURSE TOPICS

MODULE	TASKS
Module 1	<b>Topics:</b> Topic 1: Characteristics of Successful Product Development Topic 2: Duration and Cost of Product Development Topic 3: The Product Development Process Topic 4: Concept Development: The Front-End Process <b>Assessments:</b> Quiz#1



Module 2	<p><b>Topics:</b>  Topic 5: Technology-Push Products, Platform Products, Process-Intensive Products  Topic 6: Product Development Process Flows  Topic 7: Opportunity Identification  Topic 8: Tournament Structure of Opportunity Identification</p> <p><b>Assessments:</b>  Quiz#2</p>
Module 3	<p><b>Topics:</b>  Topic 9: The Product Planning Process  Topic 10: Identify Opportunities, Evaluate and Prioritize Projects, Allocate Resources and Plan Timing  Topic 11: Complete Pre-Project Planning, Identifying Customer Needs  Topic 12: Product Specifications</p> <p><b>Assessments:</b>  Midterm Exam</p>
Module 4	<p><b>Topics:</b>  Topic 13: The Activity of Concept Generation  Topic 14: Concept Selection  Topic 15: Project Management  Topic 16: Sequential, Parallel, and Coupled Tasks</p> <p><b>Assessments:</b>  Quiz#3  Lab#1: Product Conceptualization</p>
Module 5	<p><b>Topics:</b>  Topic 17: Market Segmentation  Topic 18: Product Development Economics  Topic 19: Coordination with Engineering, Manufacturing, and External Vendors  Topic 20: Technology Roadmapping</p> <p><b>Assessments:</b>  Final Exam  Lab#2: Market Research and Customer Discovery</p>

## ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow



University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

### **LEARNING REQUIREMENTS**

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

### **TECHNOLOGY POLICY**

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

### **ACADEMIC INTEGRITY POLICY**

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.



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## **DISABILITY ACCOMMODATION**

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Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.