

Course number and name	END 336 / Product Development
Credits, contact hours, categorization of credits	3 credits / 42 hours / Engineering topic
Instructor or course coordinator	Cem Kerem APPAY
Text book and other supplemental materials	<ul style="list-style-type: none"> • <i>Product Design and Development</i>. Ulrich, K.T. and Eppinger, S. D., McGraw-Hill, Third Edition, 2004. • <i>Making It: Manufacturing Techniques for Product Design</i>. Chris Lefteri. Laurence King Publishers. 2007. • <i>New Products Management</i> (2000) M. Crawford, A. Benedette, Irwin McGraw Hill.

Course information	
Content	The objective of this course is to learn integrated approach for developing products simultaneously with manufacturing processes, to learn about successful product development techniques and effective organization of product development teams, and to learn market management for new product launch
Prerequisites	None
Type	Selected elective

Course learning outcomes
<p>Students who pass the course will:</p> <ol style="list-style-type: none"> I. Describe the different stages of product development II. Identify the main drivers of product development and its types III. Analyze the cost of products and propose improvements in their design to reduce manufacturing cost IV. Demonstrate an understanding of the concept of project tasks and some elementary project planning and management techniques

Student outcomes	Level of contribution
SO1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	Partial
SO2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	High
SO3. An ability to communicate effectively with a range of audiences.	Little
SO4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	High
SO5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	Little
SO6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	Little
SO7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	Not applicable

Week	Topics	Learning outcome(s)
1	Product development concepts, terms, terminology	I
2	Identifying opportunities.	II, III
3	Determination of alternatives and selection of concept	I, III
4	Concept evaluation system	I, III, IV
5	Concept testing	I, II
6	Sales forecast	IV, II
7	Financial analysis	III
8	Concept design	II
9	Design development team	I, II
10	Main problems in design	III
11	Product usability test	II
12	Product launch planning	I
13	Market test	II
14	Market management	IV