Innovation management (for non-IE) Elective Package

Offered by: Department of Industrial Engineering & Innovation Science
Language: English
Primarily interesting for: All students except Industrial Engineering (TBdk)
Contact person: dr. Jeroen Schepers (J.J.L.Schepers@tue.nl)
Prior Knowledge: None
Other important info: Apart from an introduction into Innovation Management, this elective package also provides easy access to TU/e’s Innovation Management master for TU/e bachelor students (see http://www.im-master.nl).

- After completing this elective package, the following requirements apply for enrollment in the Innovation Management master:
  - Data science and Sustainable innovation majors can directly enroll in the master.
  - Psychology & technology majors can directly enroll in the master. For these majors, 0HV30 may replace 1ZV20. 1ZEU0A is then still recommended, but not mandatory for enrolling in the master.
  - Automotive, Applied Physics, Electrical Engineering, Industrial Design, and Mechanical Engineering majors have to do three deficiency courses in the master: (1) 1JP00 or 1JV00 (Q1), (2) 2DD80 (Q2), and (3) 1ZV60 (Q1).
  - All other TU/e majors will have to do two deficiency courses in the master: (1) 1JP00 or 1JV00 (Q1), and (2) 1ZV60 (Q1).
  - The deficiency courses (1JP00/1JV00, 2DD80, and 1ZV60) can be exempted when they are completed as elective courses in the bachelor. Note that 1JK00 may also exempt 1JP00/1JV00.

Content and composition
Innovation is essential for the competitive position of companies. Through the development of desirable new products and services, innovation helps to win new customers and strengthens the loyalty of existing ones. However, many new products and businesses fail or do not deliver the expected results because the competitive environment is dynamic and unstructured, which magnifies wrong managerial choices. The Innovation Management elective package covers strategic, organizational, marketing, and operational aspects of innovation, to enhance students’ understanding of innovation as a business process and their ability to identify improvements to innovation processes. In a broader sense, it provides engineers with the understanding that products and services are not created, nor launched, by engineers only. Many employees, customers, business units, committees and other entities inside and outside an organization play their part in innovation processes.

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Schedule</th>
<th>Timeslot</th>
<th>Level</th>
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<tbody>
<tr>
<td>1ZV50</td>
<td>Fundamentals of product innovation</td>
<td>Q4</td>
<td>E</td>
<td>1. Introductory</td>
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<tr>
<td>1ZV20</td>
<td>Marketing perspectives on product innovation</td>
<td>Q3</td>
<td>D</td>
<td>2. Deepening</td>
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<td>OR</td>
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<tr>
<td>1ZEU0A</td>
<td>New product marketing</td>
<td>Q1</td>
<td>A</td>
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<td>1JZK40</td>
<td>Designing business processes</td>
<td>Q2</td>
<td>B</td>
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Course descriptions

**Fundamentals of product innovation**
Product innovation is the main driver of growth, profitability and survival of organizations in high-tech industries. The course 'Fundamentals of Product Innovation' takes a process perspective on product innovation by focusing on the tactical and operational aspects of product innovation. Completing the course will enable industrial engineering students to: (i) Understand and describe the process of product innovation, explain the importance of its successful operation, and name the most important methods and tools to do so; (ii) Apply, analyze, measure and improve product innovation processes, methods and tools in high-tech organizations.

**Marketing perspectives on product innovation**
This course builds on the process perspective on product innovation by explaining marketing’s role in the innovation process. Although marketing is often seen as an inside-out activity including pricing and promotion, this course presents a contemporary view of marketing as an outside-in activity that helps engineers to make the right choices in high-tech product development. Therefore, the focus is on the marketing analytics that guide these decisions. Upon course completion, students should be able to describe, interpret, and critically evaluate important theory and concepts and apply them in practice. Furthermore, students will be able to design a market research study, to gather data from customers and competitors, to analyze these data using the right tools and techniques, and consequently make engineering choices to design successful new high-tech products.

**New product marketing**
How can a firm increase the likelihood of new product success? This course provides the answer; it provides an overview of the most important theories, models, and concepts in new product marketing. You will learn how customers with similar needs can be bundled into segments and how firms identify target markets and analyze which are most profitable. The course uses a mix of lectures, group assignments, presentations, and interactive cases to apply theory to real-life business situations.

**Designing business processes**
This elective is about the design of business processes from an industrial-engineering point of view. This course focuses on business processes before the product launch (innovation, e.g. new product development) as well as after the product launch (e.g., production, service). Assignments focus on the (re)design of an organizational structure (e.g., sociotechnical redesign of an operational process in a production department), and the (re)design of a system (e.g. designing a performance measurement and feedback system for teams, or a decision support system for management). Ultimately, students are empowered to (re)design an innovation process and measure its effectiveness.