



RTU Course "New Product Design and Development Methodology"

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General data

Code	IVZ746
Course title	New Product Design and Development Methodology
Course status in the programme	Compulsory/Courses of Limited Choice; Courses of Free Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Innovations
Responsible instructor	Elīna Gaile-Sarkane
Volume of the course: parts and credits points	1 part, 4.0 Credit Points, 6.0 ECTS credits
Language of instruction	LV, EN
Annotation	The focus of the course is on the integration of the marketing, design and manufacturing functions of the company in creating a new product/service as well as to develop all processes for integration of manufacturing in a company. The course is intended to provide students with a set of tools and methods for product and process design and development. During the course students will develop a real prototype of a new product/service.
Goals and objectives of the course in terms of competences and skills	The goal of the course is to systematize and broaden knowledge and develop practical skills in new product and process development and with an aim to apply this knowledge and skills in professional situations and everyday activities. Main task of the course is to develop competences in new product and process planning and development as well as process integration within a company, and to apply this in practice, to stimulate skills of creativity, planning and presentation.
Structure and tasks of independent studies	The course is based on formation of project groups (4-6 members in a project group), who during the course work on practical projects. Projects contain 5 assignments, development of prototype and presentation of the project results. Each assignment will be evaluated on a 10-grade scale. Final grade for the course is composed from: 70% evaluation of assignments; 30% evaluation of the prototype and final process project presentation.
Recommended literature	1. Karl T. Ulrich, Steven D. Eppinger. Product Design and Development. 6-th ed. Mc Graw Hill, 2010. Papildus literatūra: Inovācijas (tulkojums no angļu valodas). Rīga: Lietišķās informācijas dienests, 2009. 112 lpp. Ābeliņa A. Inovācija - XXI gadsimta fenomens. R.: Izdevniecība Turība, 2008. 151 lpp. Dimza V. Inovācijas pasaulē, Eiropā, Latvijā. R.: Latvijas Zinātņu akadēmijas Ekonomikas institūts, 2003. 205 lpp. Faruk A. Khan New product technology, accumulation, and growth. Washington, D.C. : World Bank, 2006. 42 p. Bröckel U., Meier W., Wagner G. Product design and engineering: best practices. Weinheim : Wiley-VCH, 2007.
Course prerequisites	Within the framework of the present study subject knowledge gained at the different study courses is integrated

Course outline

Theme	Hours
Introduction to the Course. Introduction to the product development process. Belbin test.	4
Project proposal presentation. Approval of project proposals. Project group formation. Project Management	6
Listening to customers and identifying customer needs. Product specification	8
QFD matrix. Needs-Matrix matrix development. Development of Concepts	4
Product planning. Concept selection (tools and methods)	6
TRIZ for new product development	4
Service development, planning of the service processes. Process maps and their development.	4
Development of product process, its planning and integration in existing processes of a company. Process optimization.	2
Concept Testing	4
Product Architecture. Robust Design	6
Design for Manufacturing Prototyping. Economics of new product development. New product marketing	10
Final Presentation and Demonstration of prototypes and product development processes	6

Learning outcomes and assessment

Learning outcomes	Assessment methods
Students will be able to develop new products combining both the theoretical and practical knowledge.	Individual and group projects. Presentation of results..

Students will be able to integrate, combine and link together different tools and solutions in new product development. Students will be able to synthesize new ideas basing on group discussion. Students will know basic principles of creativity and its role in new product development.	Individual and group projects. Presentation of results.
Students will understand the concept of customer needs; will be able to listen to the voice of the customer as well as to develop new products based on the customer needs. Students will be able to describe problem situations and find the best possible solution for practical application.	Individual and group projects. Presentation of results. Practical tasks and assignments.
Students will be able to analyze production process of a company, to integrate and optimize them.	Individual tasks. Group project. Practical application of creative methods in new product development.
Students will be able to find, analyze, compare and use practically different technical parameters and indicators, as well as choose the most appropriate one for solving situational problem.	Individual and group projects. Presentation of results
Students are able to present and explain results of their work.	Group presentation. Examination.

Study subject structure

Part	CP	Hours per Week			Tests			Tests (free choice)		
		Lectures	Practical	Lab.	Test	Exam	Work	Test	Exam	Work
1.	4.0	1.0	3.0	0.0		*			*	