



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Innovative products design methods

Course

Field of study

Management and Production Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

Tutorials

15

Projects/seminars

15

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

Dr hab. inż. Ewa Dostatni

Responsible for the course/lecturer:

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Faculty of Mechanical Engineering

ul. Piotrowo 3 60-965 Poznań

Prerequisites

The student has basic knowledge in the field of production management, as well as technical knowledge related to the discipline of machine construction and operation. He can see and make a preliminary analysis of problems in the organization. Knows the basics of product design. The student is able to analyze and evaluate and express their opinion on a given topic. Understanding the need for learning and acquiring new knowledge; recognizing the possibilities of continuous improvement in the organization's activities, with particular emphasis on manufacturing enterprises.

Course objective

The aim of the course is to familiarize students with the methods used in the field of creative problem solving to develop the concept of an innovative product.



Course-related learning outcomes

Knowledge

The student freely uses the basic concepts of innovative design. The student knows the stages of the creative process. The student knows the methods of creative problem solving.

Skills

The student has the ability to use the basic methods of creative problem solving in practice. The student is able to choose the method of creative solving for a specific project. Is able to develop a new product design using the methods learned.

Social competences

The student is creative, working in a team can justify his decisions and is aware of the responsibilities arising from them. The student knows how to cooperate in a team.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Tutorials: credit based on an test consisting of open-ended questions scored on a 0-1 scale; test is passed after obtaining at least 55% of points. Discussion of the results. The exam is conducted at the end of the semester.

Project: Evaluation based on the project.

Programme content

Tutorials:

Definition and importance of innovation in an enterprise.

The importance of innovation potential in the enterprise.

The concept of creative organization.

Creativity and innovation in the enterprise.

The process of creative problem solving (basic concepts and stages).

Methods for creative problem solving (classification, characteristics).

Inventory methods.

Design Thinking as a method of creating innovative products.

Creating a new product (including eco-innovation)

Examples of the use of creative problem solving in practice.

Project:



Selection of methodology for innovative product design.

The use of selected methods of creative problem solving in order to develop the concept of an innovative product.

Evaluation of received solutions.

Development of conceptual assumptions for an innovative product.

Product design development.

Teaching methods

Tutorials: multimedia presentation illustrated with examples given on a board, problem solving.

Project: solving practical problems, searching for sources, teamwork, discussion.

Bibliography

Basic

1. Rutkowski I. P., Rozwój nowego produktu. Metody i uwarunkowania. PWE, Warszawa, 2007
2. Antoszkiewicz A., Metody heurystyczne. Twórcze rozwiązywanie problemów. PWE, Warszawa 1990
3. Knosala R., Boratyńska-Sala A., Jurczyk-Bunkowska M., Moczala A., Zarządzanie innowacjami, PWE, Warszawa 2013

Additional

1. Hamrol A., Strategie i praktyki sprawnego działania Lean Six Sigma i inne, PWN, Warszawa, 2016
2. Szmidt K., Trening kreatywności, Wydawnictwo Helion, Gliwice 2008

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for project, preparation for test ¹)	30	1,0

¹ delete or add other activities as appropriate