Polish course name	**PROJEKTOWANIE PRODUKTU**
English course name	**PRODUCT DESIGN**
Course code	**WIP-MDL-D1-PD-05**
Field of study	**Materials design and logistics**
Level of qualification	**First degree**
Form of study	**Full-time**
Semester	**5**
Number of ECTS points	**4**
Ways of assessment	**Test**

Number of hours per semester

Lecture	Seminar	Classes	Laboratory	Project
15				30

TEACHERS:

Dr inż. Cezary Kolmasiak,

Dr inż. Zbigniew Skuza,

Dr inż. Marzena Ogórek.

COURSE OBJECTIVES:

› **C1** Provide the student with the necessary engineering knowledge to design a new product.

› **C2** Providing the student with the necessary knowledge and skills to introduce the product to the market.

PRELIMINARY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES:

1. Knowledge of the basic elements in the field of production management.
2. Ability to work independently and in a group.
3. Ability to work on a computer with a typical Windows operating system.
4. Ability to use literature sources and internet resources.

COURSE CONTENT

LECTURE

- **L1** The concept and structure of the product.
- **L2** Classification of products. Product life cycle. product life cycle costs and income.
- **L3** Strategies of entry and exit. Criteria for forming the range of products.
- **L4** Introduction to rapid prototyping methods.
- **L5** Packaging and its importance in product design.
- **L6** Factors effectively affecting a potential customer (color, shape, size, material, text, illustrations).
- **L7** Market analysis. Product planning.
- **L8** Stages in product development. Generating ideas. Initial selection of ideas.
- **L9** Materials. Selection of materials.
- **L10** Production processes.
- **L11** Preliminary study design and tests.
- **L12, L13** Marketing and economic analyzes.
- **L14, L15** Product launch. Compare products.

Project

- **P1** Introduction to design activities.
- **P2** Product life cycle. Product Life Cycle Costs and Income.
- **P3, P4** A comparative analysis of several products of the same purpose.
- **P5, P6** Changes to an existing product - redesign of an existing product in order to improve its functional, visual and design properties.
- **P7, P8** Identification and selection based on market analysis of a design product. Comparison of products available on the market.
- **P9** Stages in product development. Generating ideas. Initial selection of ideas.
- **P10 - P12** Properties and determination of material resources for the selected product.
- **P13 - P16** Materials. A proposal for the selection of materials, taking into account the processing technology. Preliminary design of the study and tests.
- **P17 - P20** Selection of the production process.
- **P21, P22** Marketing and economic analyzes.
- **P23, P24** Methods and techniques of product quality assessment.

› **P25 - P27** Packaging and its importance in product design.
› **P28** Factors that effectively affect a potential customer (color, shape, size, material, text, illustrations).
› **P29, P30** Development of the concept and definition of the functions of the packaging of the designed product.

BASIC REFERENCES

1. P. Sparke, Design Historia wzornictwa, Arkady Warszawa 2012 r.
2. J. Jabłoński, Ergonomia produktu. Ergonomiczne zasady projektowania produktów, Wydawnictwo Politechniki Poznańskiej, Poznań 2006 r.
3. R. Knosala, Inżynieria Produkcji Kompendium Wiedzy, Polskie Wydawnictwo Ekonomiczne, Warszawa 2017 r.
4. I. Durlik, Strategia i projektowanie systemów produkcyjnych. AW Placet. Gdańsk 1996 r.
5. R. Morris, Projektowanie produktu, PWN, Warszawa 2009 r.
6. Praca zbiorowa, Komunikacja wizualna, Wydawnictwa naukowe SCHOLAR, Warszawa 2012 r.

SUPPLEMENTARY REFERENCE MATERIALS

1. Praca zbiorowa, O wzornictwie przemysłowym, definicje, procedury, korzyści; opracowanie ASP, Warszawa 2010 r.
2. L. Slack, Czym jest Wzornictwo? Podręcznik projektowania, Dom wydawniczy 2007 r.

LEARNING OUTCOMES

› **EU1** The student has knowledge of product classification and the stages of developing new products.
› **EU2** The student has knowledge of the selection of materials and product manufacturing processes.

TEACHING TOOLS

› Lecture with the use of audiovisual aids.
› Project - solving problem tasks with the help of the teacher.

› E-learning platform of the Częstochowa University of Technology or other distance learning tools.
› Computer software: Corel Draw.

WAYS OF ASSESSMENT (F – FORMATIVE, P – SUMMATIVE)

› **F1**. Assessment of own work during laboratory exercises.
› **F2.** Assessment of the ability to apply the acquired knowledge while performing tasks.
› **P1.** Preparation of the design of a new product.
› **P2**. Preparation of the design and model of the product packaging.

STUDENT WORKLOAD

Form of activity	Number of hours	ECTS
Contact hours with the teacher		
Lectures	15	0,6
Seminar		
Classes		
Laboratory		
Project	30	1,2
Test		
Exam	2	0,08
Total contact hours	47	1,88
Student's own work		
Getting acquainted with the indicated literature	10	0,4
Preparation for seminar		
Preparation for classes		
Preparation for lab		
Project preparation	33	1,32
Consultation	4	0,16
Preparation for the test	6	0,24
Total student’s own work	53	2,12
Total number of hours/ ECTS points for the course	**100**	**4,0**

ADDITIONAL INFORMATION

Timetable of classes	https://wip.pcz.pl/dla-studentow/plan-zajec/studia-stacjonarne
Information about the consultation (time + place)	https://wip.pcz.pl/dla-studentow/konsultacje-dla-studentow

MATRIX OF LEARNING OUTCOMES REALISATION

Learning outcome	Reference of given outcome to outcomes defined for whole program	Course objectives	Course content	Ways of assessment
EU 1	K_W02, K_W03, K_W04, K_W07, K_U04, K_U06, K_K03,	C1, C2	L1 - L15, P1 - P30	F1, F2, P1, P2
EU 2	K_W02, K_W03, K_W04, K_U04, K_U06, K_K03,	C1, C2	L1 - L15, P1 - P30	F1, F2, P1, P2

FORM OF ASSESSMENT - DETAILS

EU1 The student has knowledge of the classification of products and the stages of developing new products.

- 2,0 The student has no knowledge of product classification and the stages of developing new products.
- 3,0 The student has a basic knowledge of the classification of products and the stages of developing new products to a sufficient degree.
- 3,5 The student has a basic knowledge of the classification of products and the stages of developing new products sufficiently plus.
- 4,0 The student has a good knowledge of the classification of products and the stages of developing new products.
- 4,5 The student has a good knowledge of the classification of products and the stages of developing new products.

› 5,0 The student has a very good knowledge of the classification of products and the stages of developing new products.

EU2 The student has knowledge of the selection of materials and product manufacturing processes.

› 2,0 The student has no knowledge of the selection of materials and product manufacturing processes.
› 3,0 The student has a basic knowledge of the selection of materials and sufficient product manufacturing processes.
› 3,5 The student has a basic knowledge of the selection of materials and the production processes of products sufficiently plus.
› 4,0 The student has a good knowledge of the selection of materials and the processes of producing products.
› 4,5 The student has a good knowledge of the selection of materials and product manufacturing processes to a positive degree.
› 5,0 The student has a very good knowledge of the selection of materials and the manufacturing processes of products.