Załącznik nr 2 do Zarządzenia Nr 16/2022 Rektora PB

COURSE DESCRIPTION CARD

<table>
<tr><td colspan="11">Bialystok University of Technology
Faculty of Mechanical Engineering</td></tr>
<tr><td>Field of study</td><td colspan="6">Mechanics</td><td colspan="2">Degree level and programme type</td><td>Bachelor's degree</td></tr>
<tr><td>Specialisation/ diploma path</td><td colspan="6">Common subject</td><td colspan="2">Study profile</td><td></td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Advanced Techniques of Computer-Aided Design</td><td colspan="2">Course code</td><td></td></tr>
<tr><td colspan="2">Course type</td><td>elective</td></tr>
<tr><td rowspan="2">Forms and number of hours of educational activities</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td colspan="2">Semester</td><td>winter</td></tr>
<tr><td>15</td><td></td><td></td><td>30</td><td></td><td></td><td></td><td colspan="2">No. of ECTS credits</td><td>4</td></tr>
<tr><td>Entry requirements</td><td colspan="10">Engineering Graphics I, Engineering Graphics II, Computer Aided Design</td></tr>
<tr><td>Course objectives</td><td colspan="10">Familiarize students with advanced techniques to assist in machine design. Practical learning to create advanced and parametric 3D solid models. Practical learning to work with PDM design documentation management system.</td></tr>
<tr><td>Course content</td><td colspan="10">Lecture:
Transition from conceptual design to detailed design. Parameterization of solid models. Multi-object modeling. Modeling of machine components and structures by bottom-up and top-down methods.
Project:
Design using object-oriented and multi-object modeling techniques. Creation of parametric solid models allowing their automatic rebuilding. Creating component models based on sketch blocks and bottom-up and top-down methods. Creation of 2D drawing documentation. Working with the PDM data exchange platform.</td></tr>
<tr><td>Teaching methods</td><td colspan="10">Information and problematic lecture; design exercises.</td></tr>
<tr><td>Assessment method</td><td colspan="10">Lecture: test
Project: assessment of completed projects, current work progress, discussions, and activities on classes</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="8">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
</table>

	Knowledge: the graduate knows and understands	
LO1	**Knows how to use the PDM project documentation management system**	**MB1_W02**
LO2	**Knows and classifies modelling techniques used in the design of machine/equipment components**	**MB1_W02**
	Skills: the graduate is able to	
LO3	**Knows how to use a correct model to develop the design of parts and subassemblies device/machine**	**MB1_U07, MB1_U08**
LO4	**Knows how to develop 2D technical documentation**	**MB1_U03, MB1_U08**
	Social competence: the graduate is ready to	
LO5	**Knows how to work in a group on a project**	**MB1_K01**
LO6	**Is aware of the need for further education**	**MB1_K01**
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	**Test**	**L**
LO2	**Test**	**L**
LO3	**Evaluation of completed projects, ongoing work progress, discussions and activity in the classroom.**	**P**
LO4	**Evaluation of completed projects, ongoing work progress, discussions and activity in the classroom.**	**P**
LO5	**Evaluation of completed projects, ongoing work progress, discussions and activity in the classroom.**	**P**
LO6	**Evaluation of completed projects, ongoing work progress, discussions and activity in the classroom.**	**P**

Student workload (in hours)		**No. of hours**
Calculation	**Lecture**	**15**
	Project classes	**30**
	Consultations	**5**
	Realization of project tasks	**20**
	TOTAL:	**70**

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	**50**	**3**
Student workload – practical activities	**20**	**1**

Basic references	1. **Ibrahim Zeid, Mastering SolidWorks the design approach, Northeastern University — Second edition.** 2. **Matt Lombard, SolidWorks 2013 Bible, Wiley Publishing 2013** 3. **Cadartifex, John Willis, Sandeep Dogra, Solidworks 2017: A Power Guide for Beginners and Intermediate Users.**
Supplementary references	1. **Matt Lombard, SolidWorks 2011 Asemmblies Bible, Wiley Publishing, 2011.**

	2. Internet websites, e.g. www.3dcad.pl, www.grabcad.com, www.dps-software.pl	
Organisational unit conducting the course	**Department of Mechanics and Applied Computer Science**	**Date of issuing the programme**
Author of the programme	**Ph.D., Eng. Wojciech Tarasiuk**	**3.03.2025**

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar