GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Designing mobile robots, PG_00061796		
Field of study	Automation, Robotics and Control Systems		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Electrical Engineering -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Paweł Kowalski	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	10.0	0.0	0.0	20.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	5.0	40.0	75

Subject objectives

Introduction to the process of designing mobile robots.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] can prepare and present a presentation on the problems and results of an engineering task	Prepares and presents a presentation on the problems and results of an engineering task.	[SU5] Assessment of ability to present the results of task
[K6_W06] knows the structure of computers and microprocessors and the tasks of operating systems, has basic knowledge of the basics of computer software, drivers, microprocessor technology, design of simple algorithms and the operation of information networks	Programs microcontrollers that control mobile robots.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
[K6_W10] has basic knowledge related to mechatronics and robotics systems	Designs and builds a mobile robot.	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
[K6_U01] can obtain information from literature, databases and other sources; integrate the information obtained, interpret it and draw conclusions, formulate and justify opinions	Gathers information from literature, databases, and other sources, and uses it during the design and construction of a mobile robot.	[SU2] Assessment of ability to analyse information [SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment

Subject contents

Course content – lecture
- Introduction to FreeCAD.
- Creating a 3D model.
- Preparing the model for 3D printing.
- Basics of 3D printing.

Course content – project
- Designing the chassis of a mobile robot.
- Building a mobile robot

<table>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Lecture assignment</td><td>50.0%</td><td>40.0%</td></tr>
<tr><td>Project</td><td>50.0%</td><td>60.0%</td></tr>
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<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>freeCAD documentation, https://wiki.freecad.org/Main_Page</td></tr>
<tr><td>Supplementary literature</td><td>Ultimaker 3D Printing Academy, https://support.makerbot.com/s/topic/0TO5b000000Q4usGAC/ultimaker-3d-printing-academy</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Development of a mobile robot in 3D printing technology.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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