GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00043298		
Field of study	Coastal and Offshore Engineering, Coastal and Offshore Engineering		
Date of commencement of studies	February 2022	Academic year of realisation of subject	2022/2023
Education level	second-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Marine Mechatronics -> Faculty of Ocean Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksander Kniat	
	Teachers	dr inż. Aleksander Kniat	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	30.0	0.0	0.0	45

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	45	5.0	25.0	75

Subject objectives

The aim of the classes is to introduce electronic sensors and control to students. There have been special stands prepared for students to let them perform exercises themselves.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_U07	Student performs data acquisition on laboratory stand with appropriate electronic sensors and controls the physical phenomenon.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
K7_U05	Student prepares himself an algorithm to control physical phenomenon on the laboratory stand.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
K7_W03	Student understands physical phenomena occurring on the laboratory stand.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>1. Acquisition and control of temperature

2. Control of step motors

3. Control of electric servo motors

4. PLC and control of a sliding gate

5. Acquisition of vibrations and trajectory of unbalanced rotating shaft

6. Stabilizing a platform subject to two dimensional harmonic disturbance</td></tr>
<tr><td>Prerequisites
and co-requisites</td><td>Bachelor of Engineering course of Physics

Fundamentals of Automation

Basics of computer programming</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>laboratory exercises</td><td>60.0%</td><td>100.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Dębowski A., Automatyka podstawy teorii, WNT Warszawa, 2008
Domachowski Z., Automatyka i robotyka podstawy, WPG Gdańsk 2003
Gilewski T., Szkoła programisty PLC. Sterowniki Przemysłowe, Wydawnictwo Helion, 2017Habrat W., Obsługa i programowanie obrabiarek CNC Podręcznik operatora, Wydawnictwo KaBe, Krosno 2015
Kaczorek T., Dzieliński A., Dąbrowski W., Łopata R., Podstawy teorii sterowania, WNT Warszawa, wydanie drugie zmienione, 2006
Korpysz K., Obstawski P., Sałat R., Wstęp do programowania sterowników PLC, Wydawnictwa Komunikacji i Łączności, Warszawa 2017
Perry S.C., C# i .NET, Wydawnictwo Helion, 2006
Stabrowski M. M., Cyfrowe przyrządy pomiarowe, Wydawnictw Naukowe PWN, Warszawa 2002
Szczepiński W., Kotulski Z., Rachunek błędów: zastosowania inżynierskie, IPPT PAN; Wydawnictwo Naukowe PWN, Warszawa 1998</td></tr>
<tr><td>Supplementary literature</td><td>Data Acquisition Handbook - a reference for DAQ and analog & digital signal conditioning (.pdf), Third Edition, Measurement Computing Corporation, USA 2004-2012</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/
example questions/
tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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