GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Digital Information Exchange Protocols, PG_00016958		
Field of study	CYFROWE PROTOKOŁY WYMIANY INFORMACJI		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Partment of Metrology and Information Systems -> Faculty of Electrical and Control Engineering -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Michał Ziółko	
	Teachers	dr inż. Michał Ziółko	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	15.0	0.0	0.0	15

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	15	2.0	33.0	50

Subject objectives

Introduce students with selected data transfer protocols.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W08] has in-depth knowledge of program development and design of complex systems automation systems using PLC and SCADA, transmission and processing of signals occurring in a variety of physical objects	The student is able to develop computer programs.	[SW1] Ocena wiedzy faktograficznej
[K7_U11] is able to design and realise simple electrical circuits and control systems for a facility or industrial process using computer systems	The student is able to use computerized measurement systems.	[SU4] Ocena umiejętności korzystania z metod i narzędzi
[K7_K02] can interact and work in a group assuming various roles and identify priorities for the achievement of a specific task	The student is able to cooperate and work in a group.	[SK1] Ocena umiejętności pracy w grupie
[K7_U05] is able to select equipment and take electrical measurements, is able to use ICT information and communication technology to carry out engineering tasks involving devices, systems and automation and robotics systems	The student is able to use information and communication technologies to carry out engineering tasks.	[SU4] Ocena umiejętności korzystania z metod i narzędzi
[K7_W03] has knowledge of digital signal processing algorithms, knows methods of designing digital circuits with given parameters	The student has knowledge of digital signal processing algorithms.	[SW1] Ocena wiedzy faktograficznej

Subject contents

Course content – laboratory
Laboratory exercises for the transmission of information using different protocols and interfaces. The study of the performance of protocols used in the industry using various transmission media (eg, serial interfaces, ethernet). Transferring information using the SCPI language.

<table>
<tr><td>Prerequisites and co-requisites</td><td>Basic knowledge of measurement systems.

Basic knowledge of programming in LabVIEW.</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>Test at the beginning of exercise</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Work at laboratory excersises</td><td>60.0%</td><td>50.0%</td></tr>
</table>
</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Information materials preprared by teacher.</td></tr>
<tr><td>Supplementary literature</td><td>1. Mielczarek W.: Szeregowe interfejsy cyfrowe. HELION, 1993.
2. Świsulski D.: Systemy Pomiarowe. Laboratorium. Wydawnictwo Politechniki Gdańskiej. Gdańsk 2004.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Frame construction Modbus and Modbus TCP protocols.

Method of generating checksum CRC.

Frame construction ADAM ASCII protocol.

Communication using SCPI language.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.