



Subject card

Subject name and code	Digital Information Exchange Protocols, PG_00016958						
Field of study	Automation, Robotics and Control Systems						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
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 -> Faculties of Gdańsk University of Technology						
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_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] Assessment of factual knowledge		
	[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] Assessment of ability to use methods and tools		
	[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] Assessment of group work skills		
	[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] Assessment of ability to use methods and tools		
	[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] Assessment of factual knowledge		
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.						

Prerequisites and co-requisites	Basic knowledge of measurement systems.		
	Basic knowledge of programming in LabVIEW.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Work at laboratory excersises	60.0%	50.0%
	Test at the beginning of exercise	60.0%	50.0%
Recommended reading	Basic literature	1. Information materials prepared by teacher.	
	Supplementary literature	1. Mielczarek W.: <i>Szeregowe interfejsy cyfrowe</i> . HELION, 1993. 2. Świsulski D.: <i>Systemy Pomiarowe. Laboratorium</i> . Wydawnictwo Politechniki Gdańskiej. Gdańsk 2004.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Frame construction Modbus and Modbus TCP protocols.		
	Method of generating checksum CRC.		
	Frame construction ADAM ASCII protocol.		
	Communication using SCPI language.		
Practical activites within the subject	Not applicable		

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