



## Subject card

Subject name and code	PROGRAMMABLE CONTROLLERS, PG_00053202						
Field of study	STEROWNIKI PROGRAMOWALNE						
Date of commencement of studies	October 2023	Academic year of realisation of subject				2025/2026	
Education level	first-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	3	Language of instruction				Polish	
Semester of study	5	ECTS credits				4.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Intelligent and Decision Support Systems -> Faculty of Electrical and Control Engineering -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Jarosław Tarnawski					
	Teachers	dr inż. Jarosław Tarnawski dr inż. Bartosz Puchalski dr inż. Tomasz Rutkowski mgr inż. Kajetan Zielonacki					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 798 STEROWNIKI PROGRAMOWALNE [ARiSS][2025/26] <a href="https://enauczanie.pg.edu.pl/2025/course/view.php?id=798">https://enauczanie.pg.edu.pl/2025/course/view.php?id=798</a>						
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	60	6.0		34.0	100	
Subject objectives	The course aims to provide skills in configuring and programming programmable controllers (PLCs). Students will learn and understand the tasks, functions, and locations of PLCs in a control system. Students will acquire programming skills in ladder logic and structured text. Students will also develop skills in designing and implementing PLCs for interfacing with a SCADA system using OPC communication servers. Students will utilize PLCs for hardware-in-the-loop operation, including connecting a physical object.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_U05] can use analytical and simulation methods to solve tasks in the field of automation and robotics and use various techniques to carry out engineering tasks related to automation and robotics devices and systems	It implements a control system in the so-called hardware loop with a simulated object, PLC and SCADA system.			[SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania		
	[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	Selects the appropriate PLC for the automation task, incorporates the device into the control system, configures and programs it.			[SW1] Ocena wiedzy faktograficznej		
	[K6_K02] can work in a group taking on different roles in it	Working in a group, students acquire leader and subordinate skills.			[SK1] Ocena umiejętności pracy w grupie		

