

## GDAŃSK UNIVERSITY

## Subject card

Subject name and code	, PG_00053427									
Field of study	Automation, Robotics and Control Systems									
Date of commencement of studies			Academic year of realisation of subject			2023/2024				
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 Metrol	ogy and Inform	ation Systems	-> Faculty of E	lectrica	I and C	ontrol Engine	ering		
Name and surname	Subject supervisor		dr inż. Beata Pałczyńska							
of lecturer (lecturers)	Teachers									
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM		
of instruction	Number of study hours	15.0	0.0	15.0	0.0		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	Introduce students with the methods and tools for programming of virtual measurement systems.									
Learning outcomes	Course outcome		Subject outcome			Method of verification				
	[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		The student is able to design a virtual instrument in a graphical environment supporting measurement system software.			[SW3] Assessment of knowledge contained in written work and projects				
	[K6_W10] has basic knowledge related to mechatronics and robotics systems		The student knows measurement tools and programs cooperating with these tools in measurement systems.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge				
	a presentation on the problems and results of an engineering task		The student is able to interpret measurement results obtained in a measurement system based on virtual instruments.			[SU5] Assessment of ability to present the results of task				
	[K6_U01] can obtain information from literature, databases and other sources; integrate the information obtained, interpret it and draw conclusions, formulate and justify opinions		The student knows the block structure of a measurement system based on virtual instruments.			[SU2] Assessment of ability to analyse information				

The hardware of VIs. The multi-function data acquisition board DAQ - construction and applications. DAQ signals, The signal conditioning. The interface standards in measuring system. The system interface bus. The serial interface. Measuring systems based on IEC-625 interface.           The software environment for development of measurement systems. Introduction to LabVIEW development environment, graphical programming language G, Virtual Instrument as basic module of creating application in G language.           Integration of VIs to computer network. VIs working under RTOS.           Design and implementation of VIs, practical aspects.           Advantages and disadvantages of VIs - analysis of development.           Prerequisites           and criteria           Subject passing criteria         Passing threshold           Laboratory - completed exercises           10. Educatory - completed exercises           8asc knowledge of electrical metrology.           Recommended reading           Basic literature         10.0%           8asic literature         1. Winicki W: Organizaci komputerowych systemow pomiarowych, Ofkryna Wydawnicza PW, WV, 1. Warszawa 2005.           Subplementary literature         2. Swisulski D: Komputerowa technika pomiarowa w przykładach, Agenda Wydawnicza PK, Warszawa 2005.           2. Lesink P., Swisulski D: Komputerowa technika pomiarowa w przykładach, Agenda Wydawnicza PK, Warszawa 2005.           3. Lesisk P., Swisulski D: Komputerowa technika pomiarowa w przykładach, Agenda Wydawnicza PK, WArszawa 2005. </th <th>Subject contents</th> <th colspan="6">The virtual instrument (VI) as a generous trend in measurement instrumentation. The conception of the virtual measuring instruments. The structure and the organization of computer-based measuring systems. The basis functional blocks. The measurement system configuration. The programming panels. The graphical user interface.</th>	Subject contents	The virtual instrument (VI) as a generous trend in measurement instrumentation. The conception of the virtual measuring instruments. The structure and the organization of computer-based measuring systems. The basis functional blocks. The measurement system configuration. The programming panels. The graphical user interface.						
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