GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Measurement and control software, PG_00052091
Field of study	Nanotechnology

Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Optional subject group 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	6	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics -> Faculties of Gdańsk University of Technology
Name and surname of lecturer (lecturers)	Subject supervisor — dr inż. Marek Chmielewski Teachers — dr hab. inż. Leszek Piotrowski; dr inż. Marek Chmielewski

Lesson types	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						
	eNauczanie source addresses: Moodle ID: 4824 Oprogramowanie pomiarowe i sterujące 2026 https://enauczanie.pg.edu.pl/2025/course/view.php?id=4824						

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	6.0	49.0	100

Subject objectives	Acquiring programming skills in the LabView graphical programming language, enabling, among other things, students to take the CLAD certification exam. During the course, the LabVIEW programming environment will be presented and its areas of application will be defined. The idea of a graphical programming language and the method of rapid prototyping for the immediate creation of applications supporting measuring devices and systems will be presented.

	Course outcome	Subject outcome	Method of verification
Learning outcomes	K6_K04	Work in the laboratory in group consist with three students, currently in single groups person. Cooperation in order to achieve the intended results. Planning and allocation of functions and roles in the process of handling the measuring equipment and data acquisition.	[SK1] Assessment of group work skills
	K6_W10	The student performs and controls the measurement experiments to assess the quality of the tested materials and defines and identifies the defects existing in the material.	[SW1] Assessment of factual knowledge
	K6_U04	In carrying out tasks related to the topics of laboratory student will know the correct methods of carrying out the experiment, will be able to realize and understand the need for multi-track analysis of the results. Properly provide calibration procedures, and effectively uses these results to determine the unknown parameters of the measured elements	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
	K6_W04	The student is able to use the programming environment to present the result of the software work, he is able to conduct the process of communication and data exchange in formats that enable communication between programming platforms and systems presenting results in various forms, including graphic format.	[SW1] Assessment of factual knowledge
	K6_U05	The student will know the capabilities of different measurement techniques, discovers and suggests the possibility of their effective use in areas other than those performed during the lab. Learns software capabilities for advanced digital signal processing	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools

Subject contents	
	Course content – lecture The content of the course is to understand and practical use of the LabView programming environment. Lecture and lab will be held under the patronage and the strict supervision of the National Instrument. In a series of lectures and labs, students will learn about the basic techniques of programming in LabView environment. Will explore the issues of control systems, measurement and control using LabView. On the lecture and laboratory will be presented the capacity of the LabView environment and its versatility in contemporary science and industry.
	Course content – laboratory During the laboratory, students will individually create sample programs in the LabVIEW environment. In the first stage, programs will be created by repeating the process presented by the course instructor. In the next stage, students will create codes independently with the instructor's help on a specific topic. At least four projects will be completed during the laboratory.

Prerequisites and co-requisites	
	Basic programming skills in scripting programming languages (C, Fortran, etc.).

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Subprojects	80.0%	100.0%

Recommended reading	Basic literature	LabVIEW Graphical Programming, Fifth Edition; Richard Jennings; McGraw-Hill Education, listopad 2019
		Hands-On Introduction to LabVIEW for Scientists and Engineers; John Essick; Oxford University Press 2018
		National Instrument - Internet sources
	Supplementary literature	not required
	eResources addresses	

Example issues/ example questions/ tasks being completed	Front panel, block diagram. Controls and indicators, local variables.
Practical activites within the subject	Not applicable

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

Example issues/ example questions/ tasks being completed	Front panel, block diagram. Controls and indicators, local variables.
Practical activites within the subject	Not applicable