GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Automation of the measurement process, PG_00051074
Field of study	Technical Physics

Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
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	3.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Division of Electrochemistry and Surface Physical Chemistry -> Institute of Nanotechnology and Materials Engineering -> Faculty of Applied Physics and Mathematics

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Ryszard Barczyński
	Teachers	dr inż. Marek Chmielewski dr hab. inż. Leszek Piotrowski dr hab. inż. Ryszard Barczyński

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	0.0	45
	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	45	2.0	28.0	75

Subject objectives	The aim of the course is to acquire basic knowledge in the field of measurement and control using IT

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_U05	Student designs, programs, builds and tests simple measuring electronic systems.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	K6_U02	Student designs, programs, builds and tests simple measuring electronic systems, analyzes them numerically.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	K6_U06	The student analyzes the costs, labor consumption and application area of his projects.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information
	K6_W05	The student independently measures basic physical quantities and analyzes them numerically.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	K6_W07	The student independently measures basic physical quantities using measuring equipment.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects

Subject contents	Elements and architecture of the measurement system Analog-to-digital conversion Digital to analog conversion Basics of automatic control processes Links for digital data transmission in measurement systems Basic types of interfaces used in digital measurement systems

Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Ocena sprawozdań	51.0%	50.0%
	Final exam	51.0%	50.0%

Recommended reading	Basic literature	1. *Tadeusz Stacewicz, Andrzej Kotlicki* **Elektronika a laboratorium naukowym** 2. *Waldemar Nawrocki* **Komputerowe systemy pomiarowe.** 3. *National Instruments LabView User Manual*
	Supplementary literature	*National Instruments web page*
	eResources addresses	Adresy na platformie eNauczanie: Automatyzacja procesu pomiarowego 2025 - Moodle ID: 44825 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44825

Example issues/ example questions/ tasks being completed	• A/D conversion methods • The structure of the measurement system

Work placement	Not applicable

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