GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Digital Metrology I, PG_00039805
Field of study	Materials Engineering, Materials Engineering, Materials Engineering

Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
Education level	second-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	1	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Department of Electrochemistry, Corrosion and Materials Engineering -> Faculty of Chemistry

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Artur Zieliński
	Teachers	dr hab. inż. Artur Zieliński

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	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	1.0	19.0	50

Subject objectives	Knowledge of terminology related to metrology. The ability to measure the physical size, correct in terms of quality and quantity.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K7_W05	The student is able to construct a test stand from the available equipment, knowing its measurement limitations.	[SW1] Assessment of factual knowledge
	K7_U03	The student is able to design a future measuring station, guided by scientific and economic considerations.	[SU4] Assessment of ability to use methods and tools

Subject contents	Digital signal definition. Differences between analog anfd digital measurement. Examples of digital techniques in everyday life and scientific investigations. Sampling anfd quantization of signals. Fourier transformation, frequency spectrum.
Prerequisites and co-requisites	General mathematics.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	lab	60.0%	50.0%
	exam	60.0%	50.0%

Recommended reading	Basic literature	R. G. Lyons, Wprowadzenie do cyfrowego przetwarzania sygnałów, WKiŁ, Warszawa, 2003
	Supplementary literature	T. P. Zieliński, Cyfrowe przetwarzanie sygnałów: od teorii do zastosowań, WKiŁ, Wyd. 2 popr, Warszawa, 2007
	eResources addresses	

Example issues/ example questions/ tasks being completed	Analysis of the signals used in impedance spectroscopy. Measurement of electrode potential by means of a digital system. Selection of the operating parameters of the measuring system according to the experimental requirements.
Work placement	Not applicable