GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00058693		
Field of study	Materials Engineering, Materials Engineering		
Date of commencement of studies	February 2024	Academic year of realisation of subject	2024/2025
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	2	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	5.0	15.0	50

Subject objectives

Presentation of algorithms for analysis of digital images. Implementation of above mentioned techniques in LabVIEW.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_W07	The student is able to search and use alternative sources of knowledge (for example, the Internet).	[SW1] Assessment of factual knowledge
K7_U07	The student is able to use tools for surface analysis of materials.	[SU1] Assessment of task fulfilment
K7_U04	The student understands the results provided by the calculation software.	[SU2] Assessment of ability to analyse information
K7_W04	The student is able to perform a comprehensive image analysis using several techniques.	[SW1] Assessment of factual knowledge

Subject contents

Signal analysis in 2-dimensional domain (images). The use of LabVIEW to process the data.

Prerequisites and co-requisites

Digital metrology I.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Lecture exam	60.0%	50.0%
Laboratory	100.0%	50.0%

Recommended reading

Basic literature	Cyfrowe przetwarzanie sygnałów. Od teorii do zastosowań, Tomasz P. Zieliński, WKŁ, Warszawa, 2005
Supplementary literature	Podstawy cyfrowego przetwarzania obrazów, Witold Malina, Sergey Ablameyko, Waldemar Pawlak, ISBN: 83-87674-44-3, Akademicka Oficyna Wydawnicza EXIT, Wydanie 1, Warszawa 2002.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1. What is the relationship between filtration and image spectrum? 2. What shows and how you can use the histogram? 3. Please describe the selected industrial applications of digital image processing.
Work placement	Not applicable

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