

## 。 GDAŃSK UNIVERSITY OF TECHNOLOGY

## Subject card

Subject name and code	, PG_00065847								
Field of study	Materials Engineering								
Date of commencement of studies	October 2024		Academic year of realisation of subject			2025/2026			
Education level	second-cycle studies		Subject group			Specialty 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	2		Language of instruction			Polish			
Semester of study	3		ECTS credits			1.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Division Of Magnetic Faculty Of Applied Ph	laterials -> Institute Of Nanotechnology And Materials Engineering -> nematics -> Wydziały Politechniki Gdańskiej					ineering ->		
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Leszek Piotrowski						
	Teachers dr hab. inż. Leszek Piotrowski								
Lesson types and methods	Lesson type	Lecture	Tutorial Laboratory Project		t	Seminar	SUM		
of instruction	Number of study hours	0.0	0.0	15.0	0.0		0.0	15	
	E-learning hours inclu	ided: 0.0							
Learning activity and number of study hours	Learning activity	Participation ir classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM	
	Number of study hours	15		1.0		9.0		25	
Subject objectives	The aim of the course is to prepare the student for experimental work in the field of materials testing with the use of modern non-destructive diagnostic techniques. These techniques are widely used in industry to study the physical properties of matter, the state of structure and to detect defects.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K7_U04] Can undertake a detailed analysis of the obtained results and develop a technical report or presentation, also in English.		The student is able to analyze the results obtained and processs them using appropriate software tools (Origin, LabView)			[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools			
	[K7_W05] Knows methods, techniques, tools and materials for solving complex engineering tasks relevant to materials engineering.		The student has knowledge of modern methods of non- destructive testing Can choose a measurement method for the examined issue.			[SW3] Assessment of knowledge contained in written work and projects			
[K7_U03] Can formulate a research hypothesis, design an experiment needed to prove it and use properly selected measuring and laboratory methods.		The student is able to assess the situation and select the required measuring equipment on the basis of the data provided by the potential client. It is able to carry out measurements on its own using diagnostic devices.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools				
Subject contents	Visual Testing Magnetic testing Distributed field method The Barkhausen effect Guided waves Magnetostrictive pulses Eddy current techniques Stress measurements								
Prerequisites and co-requisites									
Assessment methods	Subject passin	g criteria	Pass	ing threshold		Pero	centage of the	final grade	
	100		50.0%			100.0%	0		

Recommended reading	Basic literature	Handbook of Nondestructive Evaluation, Charles Hellier, McGraw-Hill, 2020				
	Supplementary literature	Introduction To Nondestructive Testing A Training Guide Second Edition Paul E. Mix; John Wiley & Sons 2005				
	eResources addresses	Adresy na platformie eNauczanie:				
Example issues/ example questions/ tasks being completed	D efect d etection i n rods . G uided waves i n p ipes. M easurements o f t he s peed o f s ound. M easurements o f t he s tress s tate i n w elds. E ddy c urrent t ests o f t he t hickness of paint I ayers.					
Work placement	Not applicable					

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