



Subject card

Subject name and code	NANOSCOPY OF SURFACES, PG_00064361						
Field of study	Corrosion						
Date of commencement of studies	February 2027		Academic year of realisation of subject		2027/2028		
Education level	second-cycle studies		Subject group		Obligatory subject group in the field of study 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	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Corrosion and Electrochemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Paweł Ślepski				
	Teachers						
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						
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		5.0		25.0	75
Subject objectives	The aim of the course is to familiarise students with the modification and analysis of construction material surfaces, mainly using metal coatings.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W01] defines the phenomena and processes used to produce consumer goods and run services		The student is able to define and characterise surface phenomena relevant to the production and use of materials and to the design of technologies and services related to corrosion protection.		[SW1] Assessment of factual knowledge		
	[K7_U02] conducts experiments using properly selected techniques and apparatus, taking advantage of new developments in corrosion and related fields		the student is able to plan and conduct an experiment using appropriately selected research techniques, correctly operate the equipment and apply modern solutions in the analysis of material surfaces in the context of corrosion and related problems		[SU4] Assessment of ability to use methods and tools		
	[K7_K03] can interact and work in a group, undertaking various roles within it		The student is able to work in a team during laboratory and project tasks, taking on various roles, which enables effective examination and interpretation of the surface structure of metal coatings.		[SK1] Assessment of group work skills		

Subject contents	Course content – lecture hot dip galvanizing electroplating metal spray galvanizing conversion coatings nanoscopic examination of metal coatings preparation of elements for surface metallisation		
Prerequisites and co-requisites	Optical microscopy, electron microscopy, corrosion processes		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	report	100.0%	40.0%
	final test	60.0%	60.0%
Recommended reading	Basic literature	Dror Sarid, Scanning Force Microscopy. With Applications to Electric, Magnetic, and Atomic Forces ISBN13: 978-0-19-509204-2 Robert Kelsall, Ian Hamley, Mark Geoghegan, Nanotechnologie, ISBN: 9788301155377 Sergei V. Kalinin, Alexei Gruverman, Scanning Probe Microscopy. Electrical and Electromechanical Phenomena at the Nanoscale, ISBN: 978-0-387-28667-9	
	Supplementary literature	Rebecca Howland, Lisa Benatar, STM / AFM. Mikroskopy ze skanującą sondą. Elementy teorii i praktyki. Warszawa 2002.	
	eResources addresses		
	Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none">• surface preparation before metallization• composition of the galvanising bath in relation to coating properties• location of technological holes• coating capacity of the bath• surface properties of metal coatings	
Practical activities within the subject	Not applicable		

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