GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	METHODS FOR TESTING MATERIAL DEGRADATION, PG_00064330		
Field of study	Chemical Technology		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2024/2025
Education level	second-cycle studies	Subject group	Optional 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	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 Corrosion and Electrochemistry -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Paweł Ślepski	
	Teachers	dr hab. inż. Paweł Ślepski dr hab. inż. Michał Szociński dr inż. Łukasz Gaweł	

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

The aim of the subject is to familiarise students with electrochemical and non-electrochemical methods of testing the degradation of construction materials and corrosion protection. Students learn about the assumptions of the techniques discussed, their possible applications, and their advantages and disadvantages.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_K01] critically evaluates the content of cognitive and practical problems	Students are able to search for information on the interpretation of measurement results and the calculation models used in available literature databases.	[SK5] Assessment of ability to solve problems that arise in practice
[K7_W02] selects appropriate apparatus and materials for the manufacture and processing of consumer goods	The student is knowledgeable about methods of testing the degradation of metallic and non-metallic	[SW1] Assessment of factual knowledge
[K7_U02] carries out experiments using properly selected techniques and apparatus, taking advantage of new developments in technology and related fields	The student is able to conduct a proper electrochemical or non-electrochemical experiment to analyse corrosion.	[SU4] Assessment of ability to use methods and tools

Subject contents

Use of polarisation in the study of the degradation process of metals (resistance polarisation, Tafel curve analysis, impedance spectroscopy, harmonic analysis, etc.). Non-electrochemical methods in the analysis of the degradation of metallic and non-metallic materials, optical methods.

Prerequisites and co-requisites

Basic knowledge of chemical engineering and electrochemistry.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
lecture	60.0%	70.0%
laboratory	100.0%	30.0%

Recommended reading	Basic literature	Corrosion Tests and Standards Application and Interpretation. Ed. by R. Baboian, Astm Intl. Corrosion Testing Made Easy: DC Electrochemical Test Methods (Corrosion Testing Made Easy (Ctme) Series), N.G. Thompson, NACE International
	Supplementary literature	standards ASTM, ISO
	eResources addresses	Adresy na platformie eNauczanie: METODY BADAŃ DEGRADACJI MATERIAŁÓW - Moodle ID: 44522 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=44522
Example issues/ example questions/ tasks being completed	Polarisation methodsVolumetric methodsNon-linear methodsAcoustic emissionMicroscopic methods	
Work placement	Not applicable	

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