GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Failure Analysis, PG_00039090		
Field of study	Chemistry in Construction Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	3.0
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. Paweł Ślepski	
	Teachers	dr hab. inż. Paweł Ślepski	

Lesson types and methods of instruction

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

Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=19389

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 student properly investigates objects damaged by the corrosion processes. The student is able to prepare analysis of corrosion damage report.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W08	The student presents typical dangers for material caused by the given environment	[SW1] Assessment of factual knowledge
K6_K03	The student is able to use the necessary information to identify corrosion damage and prepare a report	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents

Analysis of corrosion damages generated by different corrosion processes (general corrosion, galvanic corrosion, pitting corrosion, crevice corrosion, intergranular corrosion, stress corrosion cracking, etc.). General description of particular corrosion processes. Review of common places of corrosion damages in industrial systems. Methods of failure analysis. Elements of prevention. Preparation of reports

Prerequisites and co-requisites

Basic knowledge of electrochemistry

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
reports	100.0%	40.0%
written exam	50.0%	60.0%

Recommended reading

Basic literature	Practical Engineering Failure Analysis, H.M. Tawancy, A. Ul-Hamid, N.M. Abbas, Marcel Dekker, New York 2004
Supplementary literature	Fundamentals of Metallic Corrosion, P.A. Schweitzer, CRC Press, New York 2006
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Corrosion of metal elements in industrial plantsCorrosion of heat exchangersCorrosion of pipework in the groundElectrochemical corrosion in reinforced concrete structures

Work placement	Not applicable