GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00065840		
Field of study	Materials Engineering		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
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	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	dr hab. inż. Paweł Ślepski	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	30.0	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	4.0	41.0	75

Subject objectives

The aim of the course is to familiarize students with the procedures used in the analysis of component/ objectdamage, to carry out damage tests (corrosion tests, chemical analyses, mechanical tests, microscopic examinations, etc.) and to analyze the results.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_K02] Is aware of the importance of non-technical aspects and effects of engineering, including the influence on the environment and resulting responsibility for the decisions.	Students works in team, adopting various roles	[SK1] Assessment of group work skills
[K7_U01] Can obtain information from literature, databases and other properly selected sources, also in English; can integrate the obtained information, interpret and draw conclusions, formulate and justify opinions	Can select construction materials suitable for a given corrosive environment	[SU2] Assessment of ability to analyse information
[K7_W04] Has enhanced knowledge of materials sciences, within the scope required for describing and understanding the correlation between the chemical composition, structure and mechanical and physical properties.	The student can explain the changes in the physical properties of an object undergoing corrosion.	[SW1] Assessment of factual knowledge

Subject contents

Course content – project
Analysis of corrosion failure caused by various corrosion processes (general, galvanic, concentration, pitting, fracture, intergranular corrosion, corrosion cracking, etc.). General characteristics of particular corrosion phenomena. Overview of the most common locations of corrosion failure in industrial installations. Failure analysis methods. Forms of corrosion prevention. Familiarization with corrosive damage databases. Building analyse report

Prerequisites and co-requisites

Knowledge of various corrosion processes and mechanisms, knowledge of electrochemical techniques

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Report</td><td>100.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Practical Engineering Failure Analysis, H.M. Tawancy, A. UlHamid, N.M. Abbas, Marcel Dekker, New York 2004

2. Fundamentals of Metallic Corrosion, P.A. Schweitzer, CRC Press, New York 2006</td></tr>
<tr><td>Supplementary literature</td><td>Engineering Failure Analysis - ISI journal</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Effect of corrosive environment

Analysis of material composition

Operating conditions

Damage analysis</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="2">Not applicable</td></tr>
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