GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Corrosion of industrial buildings, PG_00069272		
Field of study	Chemical Technology, Chemistry, Biotechnology, Engineering and Technologies of Energy Carriers, Corrosion , Green Technologies, InfoBioChem		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2026/2027
Education level	second-cycle studies	Subject group	
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. Stefan Krakowiak	
	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

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=3089

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 this course is to identify the main causes and characteristics of corrosion processes occurring in various industrial installations. The characteristics of corrosion and the main causes of its occurrence in selected industrial installations will be presented.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U02] conducts experiments using properly selected techniques and apparatus, taking advantage of new developments in corrosion and related fields	is able to correctly select the appropriate research method for the corrosion problem being solved.	[SU4] Assessment of ability to use methods and tools
[K7_W01] defines the phenomena and processes used to produce consumer goods and run services	has knowledge of production engineering and technology.	[SW3] Assessment of knowledge contained in written work and projects
[K7_K01] critically evaluates the content of scientific and practical problems	is able to critically evaluate their own knowledge and the information they receive, and recognizes the importance of knowledge in solving cognitive and practical problems.	[SK5] Assessment of ability to solve problems that arise in practice

Subject contents

Course content – lecture
Course Content - Lecteres
1. Electrochemical Corrosion and High-Temperature (Chemical) Corrosion.
2. Corrosion Protection Technologies.
3. Corrosion of Underground and Subsea Structures.
4. Corrosion of Offshore Installations.
5. Corrosion of Water Treatment Systems.
6. Corrosion in Wastewater Treatment Systems.
7. Stainless Steels as an Alternative to Carbon Steels.

Course content – laboratory
Course Content - Labs
1. Concrete Corrosion;
2. Corrosion of Structural Materials in Acidic Condensates;
3. Corrosion in Clean-in-Place (CIP) Conditions;
4. The Effect of Temperature on Stainless Steel Corrosion (Heat Exchanger Corrosion);
5. Interaction of Coating Protection with Cathodic Protection in Immersed Structures;
6. Corrosion and Erosion in Flue Gas Desulfurization Systems;
7. Corrosion Problems When Joining Structural Materials;
8. Corrosion Problems as a Result of Subsea Pipeline Failures.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Basic knowledge of chemical engineering and materials science.</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Written examination of the lecture part</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Completion of laboratory classes</td><td>100.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Alec Groysman, Corrosion in Systems for Storage and Transportation of Petroleum Products and Biofuels Identification, Monitoring and Solutions, Springer, 2014
H.M. Shalaby, A. Al-Hashem, M. Lowther, J. Al-Besharah, INDUSTRIAL CORROSION AND CORROSION CONTROL TECHNOLOGY, Published By Kuwait Institute for Scientific Research, 1996
Ramesh Singh-Corrosion control for offshore structures _ cathodic protection and high-efficiency coating-Elsevier, Gulf Professional Publishing (2015)</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Ramesh Singh-Corrosion control for offshore structures _ cathodic protection and high-efficiency coating-Elsevier, Gulf Professional Publishing (2015)</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Corrosion of offshore installations
Corrosion of industrial installations
Corrosion protection of industrial installations.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="3">Not applicable</td></tr>
</table>

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