GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	CORROSION IN MARINE INDUSTRY, PG_00064358		
Field of study	Corrosion		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Corrosion and Electrochemistry -> Faculty of Chemistry -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Stefan Krakowiak	
	Teachers	dr hab. inż. Stefan Krakowiak	

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	2.0	18.0	50

Subject objectives

The aim of the subject is to familiarize students with the characteristics of degradation processes occurring in the marine environment. Information on corrosion processes taking place in seawater and atmosphere characteristic for the coastal area will be presented. The methods of corrosion protection most often implemented in the conditions of exploitation of the structure in the marine environment will also be discussed. Standards applied in the process of securing marine installations will also be presented, with particular emphasis on application technology of paint coatings.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_K03] can interact and work in a group, undertaking various roles within it	The student has knowledge of both the execution and supervision of industrial construction safety systems.	[SK5] Assessment of ability to solve problems that arise in practice [SK1] Assessment of group work skills
[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 assess the appropriateness of the selected corrosion control technology in laboratory conditions using electrochemical and spectroscopic methods. Selects and verifies the effectiveness of corrosion protection methods for industrial installations.	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
[K7_W05] recognises key developments in research, apparatus and technology in corrosion and material degradation and related fields	The student has the knowledge to select appropriate materials and techniques to protect industrial installations under defined operating conditions.	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td>Lectures:

1. Characteristics of the corrosion process in the conditions of sea and saline waters;

2. An overview of legal regulations regarding the protection of marine constructions with particular emphasis on the requirements of NORSOK M-501 and the IMO SOLAS convention;

3. Methods of protection against corrosion in marine conditions;

4. Designing of corrosion monitoring systems:

5. Discussion of selected corrosion cases in the maritime economy.

Laboratory works:

1. Corrosion of metallic connections

2. The effect of oxygenation on the corrosion rate of construction materials.

3. Research on the interaction of cathodic protection and organic coatings.

4. Assessment of the suitability of galvanic anodes used in the maritime industry.

5. Corrosion of construction materials in the marine environment.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>passing the laboratory</td><td>100.0%</td><td>50.0%</td></tr>
<tr><td>passing the lecture</td><td>60.0%</td><td>50.0%</td></tr>
</table>
</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>available on the site e-nauczanie</td></tr>
<tr><td>Supplementary literature</td><td>available on the site e-nauczanie</td></tr>
<tr><td>eResources addresses</td><td>Basic
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=31003 - available on the e-korozja portal
Supplementary
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=31003 - available on the e-korozja portal</td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Factors affecting corrosion in marine environment.

The influence of salinity on the rate of corrosion.

Anticorrosion methods for marine objects.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.