



## Subject card

Subject name and code	Corrosion in marine industry, PG_00035460						
Field of study	Corrosion						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study 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 Electrochemistry, Corrosion and Materials Engineering -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Stefan Krakowiak					
	Teachers						
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	3.0		17.0	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_U01	The student is able to use databases to solve problems with corrosion and to propose the most effective methods to counteract damage.			[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		
	K7_W03	The student is able to use the acquired knowledge to select the most effective way to protect the marine structure from corrosion.			[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
	K7_W02	Student is able to recognize characteristic corrosion attacks and can identify methods for minimizing their effects.			[SW1] Assessment of factual knowledge		
	K7_U04	The student is able to apply simple measurement methods to determine the corrosive risk and factors that cause them.			[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		

Subject contents	<p>Lectures:</p> <ol style="list-style-type: none"> <li>1. Characteristics of the corrosion process in the conditions of sea and saline waters;</li> <li>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;</li> <li>3. Methods of protection against corrosion in marine conditions;</li> <li>4. Designing of corrosion monitoring systems:</li> <li>5. Discussion of selected corrosion cases in the maritime economy.</li> </ol> <p>Laboratory works:</p> <ol style="list-style-type: none"> <li>1. Corrosion of metallic connections</li> <li>2. The effect of oxygenation on the corrosion rate of construction materials.</li> <li>3. Research on the interaction of cathodic protection and organic coatings.</li> <li>4. Assessment of the suitability of galvanic anodes used in the maritime industry.</li> <li>5. Corrosion of construction materials in the marine environment.</li> </ol>											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Subject passing criteria</th> <th style="width: 33%;">Passing threshold</th> <th style="width: 33%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>passing the laboratory</td> <td>60.0%</td> <td>50.0%</td> </tr> <tr> <td>passing the lecture</td> <td>60.0%</td> <td>50.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	passing the laboratory	60.0%	50.0%	passing the lecture	60.0%	50.0%
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Example issues/ example questions/ tasks being completed	<p>Factors affecting corrosion in marine environment.</p> <p>The influence of salinity on the rate of corrosion.</p> <p>Anticorrosion methods for marine objects.</p>											
Work placement	Not applicable											