GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Corrosion Processes, PG_00048916		
Field of study	Chemistry in Construction Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
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 Corrosion and Electrochemistry -> Faculty of Chemistry -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Kazimierz Darowicki	
	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	5.0	40.0	75

Subject objectives

Understanding the essence of electrochemical processes. Thermodynamic conditions. Kinetic conditions

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U09	The student knows the methods of environmental corrosivity assessment. Is able to apply appropriate building materials or an appropriate corrosion protection method to the existing corrosion hazards.	[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
K6_W05	The student is able to use the acquired knowledge to select appropriate building materials.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
K6_K03	The student is able to perform basic works related to the protection of building materials against corrosion and independently makes decisions about the choice of the protection method.	[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work

Subject contents

Lecture: -Chemical thermodynamics: corrosion cells, E/pH diagrams, thermodynamic stability of water and its solutions. -Corrosion processes kinetics: E=f(I) diagrams, corrosion processes control. -Types of corrosion: general, pitting, selective, intergranular, crevice, stress corrosion and stress corrosion cracking, corrosion-erosion, cavitation. -Corrosion occuring conditions (practical examples). -Atlas of corrosion fatigue: description and visualization of fatigues. Laboratory: 1.Introduction and safety. 2.Temperature cell. 3.Oxygen concentration cell. 4.Galvanic cell. 5.Crevice corrosion. 6.Intergranular corrosion. 7.Selective corrosion of brass. 8.Pitting corrosion of steel. 9.Water 10.Reserved.

Prerequisites and co-requisites

Chemical thermodynamics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Laboratory	60.0%	50.0%
Written exam	60.0%	50.0%

Recommended reading

Basic literature	http://www.korozja.pl
Supplementary literature	No requirements
eResources addresses	

Example issues/ example questions/ tasks being completed	1-Types of corrosion? 2- Structure of construction materials? 3-Characteristics of corrosive environments?
Work placement	Not applicable

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