



Subject card

Subject name and code	Metal corrosion, PG_00060748						
Field of study	Chemical Technology						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
Education level	first-cycle studies		Subject group		Optional 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	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		2.0		
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	15.0	0.0	0.0	30
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=2874						
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 course is to introduce students to the basics of corrosion processes and to familiarize them with the basic types of corrosion that constitute the greatest problem in the economy.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U08] is able to classify and apply knowledge of the driving forces of corrosion processes in different construction materials to the design of process installations and the selection of corrosion protection methods for installations		The student is able to diagnose corrosion of construction materials and The student is able to indicate factors influencing the development of corrosion and knows methods of limiting their impact on industrial structures.		[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information		
	[K6_W07] has knowledge of structural materials used in the chemical industry and their corrosion, corrosion monitoring and protection, and corrosion metrology		The student is able to diagnose corrosion of construction materials and is able to propose a method of protecting them against corrosion.		[SW1] Assessment of factual knowledge		
	[K6_K01] understands the need for continuing education, and is aware of the opportunities to improve professional, personal and social competences		The student understands the need for continuous improvement of professional skills		[SK5] Assessment of ability to solve problems that arise in practice		
	[K6_W02] has knowledge of inorganic, organic, physical and analytical chemistry useful for obtaining selected groups of compounds, determining their physical and chemical properties allowing for their quantitative and qualitative analysis, making measurements and determining the parameters of chemical reactions, phenomena and processes occurring in chemical technology		Has knowledge of chemistry enabling him to solve simple metal corrosion problems.		[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		

Subject contents	Course content – lecture Metals and Alloys - Iron/Carbon Diagram; Pourbaix Diagrams; Corrosion Diagrams; Galvanic Corrosion; General Corrosion; Local Corrosion; Corrosion Cracking, Fatigue Corrosion; Corrosion - Erosion, Cavitation;		
	Course content – laboratory 1. Electrochemical potential and corrosion potential; 2. Galvanic cells; 3. Concentration and temperature cells; 4. Passivity of metals and alloys; 5. Localized corrosion - pitting and crevice; 6. Intergranular corrosion; 7. Selective corrosion.		
Prerequisites and co-requisites	Basics of electrochemistry and physical chemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing the lab	100.0%	50.0%
	Passing the lectures	60.0%	50.0%
Recommended reading	Basic literature	R. Juchniewicz, Anti-Corrosion Technology, Parts 1 and 2 G. Wranglen Basics of Corrosion and Metal Protection. WNT, Warsaw 1975 H.H. Uhlig Corrosion Protection, WNT, Warsaw 1976	
	Supplementary literature	K. Żakowski, K. Darowicki - Cathodic Protection, PG Publishing House A. Miszczyk, M. Szociński, K. Darowicki, Paint Coatings in Anticorrosion Protection. Principles of Application and Quality Control, PG Publishing House	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Evans Chart for Cathodic Control Corrosion Reactions Polarization Galvanic Cells Corrosion Cells		
Practical activities within the subject	Not applicable		

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