



Subject card

Subject name and code	Corrosion metallurgy, PG_00060764						
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. Michał Szociński				
	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						
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: fundamental information concerning structure of metals and alloys, their properties with a special emphasis on susceptibility to corrosion, fundamental procedures connected with preparation of metallographic specimens and their evaluation.-						
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 determine the corrosion hazard of a given material in a specific operating environment.		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_K01] understands the need for continuing education, and is aware of the opportunities to improve professional, personal and social competences		The student is aware of the need to seek information on the functional properties of construction materials in terms of their selection for various operating environments.		[SK5] Assessment of ability to solve problems that arise in practice		
	[K6_U02] is able to operate typical laboratory apparatus and conduct analyses related to materials testing		The student is able to prepare metallographic sample and perform its microscopic evaluation.		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_W07] has knowledge of structural materials used in the chemical industry and their corrosion, corrosion monitoring and protection, and corrosion metrology		The student knows the main areas of application of popular construction materials from the point of view of their corrosion resistance.		[SW1] Assessment of factual knowledge		
Subject contents	Course content – lecture Structure and properties of metals and alloys, general classification of metals and alloys, detailed structure of carbon steels, stainless steels, cast irons and non-ferrous alloys (copper and aluminum). Course content – laboratory Preparation of metallographic specimens for microscopic analysis, preparation of samples for standard corrosion tests, procedure of macro- and microexamination of metallographic specimens, metallographic examination of corrosion damages of metals and alloys.						

Prerequisites and co-requisites	Fundamentals of physics and physical chemistry.		
	Fundamentals of materials science.		
	Fundamentals of mechanics of materials.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test from lectures	60.0%	50.0%
	Tests and reports from laboratory exercises	60.0%	50.0%
Recommended reading	Basic literature	Dobrzański L.A.: Podstawy nauki o materiałach i metaloznawstwo. WNT. Gliwice-Warszawa 2002.	
		Dobrzański L.A. i in.: Metalowe materiały inżynierskie. WNT. Warszawa 2004.	
		Dobrzański L.A. i in.: Metaloznawstwo i obróbka cieplna materiałów narzędziowych WNT. Warszawa 1990.	
		Przybyłowicz K.: Metaloznawstwo (wyd. VIII). WNT. Warszawa 2007.	
		Pr. Zb. [red. M. Głowacka]: Metaloznawstwo. Wyd. Politechniki Gdańskiej. Gdańsk 1996.	
		Pr. Zb. [red. J. Hucińska]: Metaloznawstwo. Materiały do ćwiczeń laboratoryjnych. Pr. Zb. [red. M. Głowacka]: Metaloznawstwo. Wyd. Politechniki Gdańskiej. Gdańsk 1996.	
		Pr. Zb. [red. J. Hucińska]: Metaloznawstwo. Materiały do ćwiczeń laboratoryjnych. Wyd. Politechniki Gdańskiej. Gdańsk 1995.	
	Supplementary literature	Pr. Zb. [red. M. Głowacka, A. Zieliński]: Podstawy materiałoznawstwa. Pr. Zb. [red. M. Głowacka]: Metaloznawstwo. Wyd. Politechniki Gdańskiej. Gdańsk 2014.	
		Pr. Zb. [red. J. Hucińska]: Metaloznawstwo. Materiały do ćwiczeń laboratoryjnych. Wyd. Politechniki Gdańskiej. Gdańsk 2014.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. Name and describe the examples of point and linear defects of crystalline lattice.		
	2. How is the hardness measurement according to the Vicker's method performed?		
	3. Characterize brasses based on their alloy composition.		
	4. Provide the characteristics of the passive layer on aluminium.		
	5. Describe the phenomenon of intergranular corrosion of stainless steels.		
Practical activities within the subject	Not applicable		

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