



Subject card

Subject name and code	Corrosion metallurgy, PG_00060764						
Field of study	Chemical Technology						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2028/2029	
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_U02] Performs design calculations of technological processes, selects industrial equipment, operates laboratory equipment and conducts material analyses	can perform basic calculations of the corrosion rate of structural materials.			[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
	[K6_U08] Is able to select elements of automatic control systems for simple technological processes and use computer programs to control and optimize chemical processes.	is able to suggest ways of anti-corrosion protection of construction materials.			[SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_W07] Has knowledge of raw materials and technologies in the chemical and polymer industries, also covering issues of corrosion and material protection.	has the ability to relate the properties of the main construction materials to their corrosion resistance.			[SW1] Assessment of factual knowledge		
	[K6_K01] Is aware of the social role of a technical university graduate and understands the need to provide information about technical achievements and engineering activities to society, including through the media.	is aware of the importance of corrosion problems in ensuring the safety of engineering installations and structures.			[SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness		
Subject contents	<p>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).</p> <p>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.</p>						

Prerequisites and co-requisites	<p>Fundamentals of physics and physical chemistry.</p> <p>Fundamentals of materials science.</p> <p>Fundamentals of mechanics of materials.</p>		
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	<p>Basic literature</p> <p>Dobrzański L.A.: Podstawy nauki o materiałach i metaloznawstwo. WNT. Gliwice-Warszawa 2002.</p> <p>Dobrzański L.A. i in.: Metalowe materiały inżynierskie. WNT. Warszawa 2004.</p> <p>Dobrzański L.A. i in.: Metaloznawstwo i obróbka cieplna materiałów narzędziowych WNT. Warszawa 1990.</p> <p>Przybyłowicz K.: Metaloznawstwo (wyd. VIII). WNT. Warszawa 2007.</p> <p>Pr. Zb. [red. M. Głowacka]: Metaloznawstwo. Wyd. Politechniki Gdańskiej. Gdańsk 1996.</p> <p>Pr. Zb. [red. J. Hucińska]: Metaloznawstwo. Materiały do ćwiczeń laboratoryjnych. Pr. Zb. [red. M. Głowacka]: Metaloznawstwo. Wyd. Politechniki Gdańskiej. Gdańsk 1996.</p> <p>Pr. Zb. [red. J. Hucińska]: Metaloznawstwo. Materiały do ćwiczeń laboratoryjnych. Wyd. Politechniki Gdańskiej. Gdańsk 1995.</p> <p>Supplementary literature</p> <p>Pr. Zb. [red. M. Głowacka, A. Zieliński]: Podstawy materiałoznawstwa. Pr. Zb. [red. M. Głowacka]: Metaloznawstwo. Wyd. Politechniki Gdańskiej. Gdańsk 2014.</p> <p>Pr. Zb. [red. J. Hucińska]: Metaloznawstwo. Materiały do ćwiczeń laboratoryjnych. Wyd. Politechniki Gdańskiej. Gdańsk 2014.</p> <p>eResources addresses</p>		
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Name and describe the examples of point and linear defects of crystalline lattice.</li> <li>2. How is the hardness measurement according to the Vicker's method performed?</li> <li>3. Characterize brasses based on their alloy composition.</li> <li>4. Provide the characteristics of the passive layer on aluminium.</li> <li>5. Describe the phenomenon of intergranular corrosion of stainless steels.</li> </ol>		
Practical activities within the subject	Not applicable		

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