



Subject card

Subject name and code	Corrosion metallurgy, PG_00039724						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject				2022/2023	
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				3.0	
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. Michał Szociński				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45		5.0		25.0	75
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_U01		student can use the methods to describe basic metallographic properties of metals and alloys			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment	
	K6_K01		student can plan the actions aimed at description of metallographic properties of materials			[SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice	
	K6_W07		student has knowledge of structure and properties of fundamental construction materials			[SW3] Assessment of knowledge contained in written work and projects	
	K6_U02		student can evaluate fundamental physical properties of metals, utilize metallographic microscope and atomic force microscope to analyse microstructure of materials			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment	
Subject contents	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), 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
	Tests and reports from laboratory exercises	60.0%	50.0%
	Test from lectures	60.0%	50.0%
Recommended reading	Basic literature	<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>	
	Supplementary literature	<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>	
	eResources addresses	Adresy na platformie eNauczanie:	
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 in crystalline lattice.</li> <li>2. Describe the method of Vickers' hardness measurement.</li> <li>3. Characterize the types of brass based on their composition.</li> <li>4. Characterize the passive layer on aluminum.</li> <li>5. What does intercrystalline corrosion consist in?</li> </ol>		
Work placement	Not applicable		