



Subject card

Subject name and code	Corrosion Measurements, PG_00039820						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study 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. Stefan Krakowiak				
	Teachers		dr hab. inż. Stefan Krakowiak dr hab. inż. Michał Szociński dr inż. Łukasz Gawel dr hab. inż. Andrzej Miszczyk				
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	Teaching students basic information about corrosion and presenting selected measurement methods used in the science of corrosion.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_W04		Can select a research method to solve the problem related to corrosion.		[SW1] Assessment of factual knowledge		
	K6_U02		The student knows the methods of determining the corrosion rate and is able to assess the composition and type of construction material.		[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		
	K6_K01		The student knows what are the ways of improving professional competences in the field of corrosion and metal protection.		[SK2] Assessment of progress of work [SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice		
	K6_U01		The student is able to determine the corrosion rate and indicate the type of corrosion attack.		[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		

Subject contents	Lecture: 1 - Basics of corrosion; 2 - Corrosion environments; 3 - Corrosion protection basics; 4 - Potential and corrosion current measurements; 5 - Corrosion rate evaluation; 6 - Corrosion Monitoring; 7 - Paints and varnishes measurements; 8 - Coatings. Laboratory exercises: 1. Introduction and safety condition in laboratory, 2. Corrosion cells, 3. Reference electrodes, 4. Metallography, 5. Physiko-chemical properties measurements of solutions - density, pH, O2 content, 6. Total hardness of water, 7. Physiko-chemical properties of paint and coatings, 8. Diffusion of water in engineering materials, 9. Corrosion rate of industrial alloys: mild steel, galvanized steel, copper and aluminium. Relative humidity effect, 10. Properties of copper slag as a abrasive.11. Reserve.		
Prerequisites and co-requisites	Knowledge engineering measurements basis: pH, conductivity, density, etc. Knowledge of voltmeter and zeroammeter service.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	doing laboratory	60.0%	50.0%
	doing lecture	60.0%	50.0%
Recommended reading	Basic literature	Textbooks available on https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14123	
	Supplementary literature	no recommendation	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Investigation of current and potential in galvanic cells.		
Work placement	Not applicable		