GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Corrosion Measurements, PG_00039820		
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	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 Gaweł
		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_U01	The student is able to determine the corrosion rate and indicate the type of corrosion attack.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information
	K6_K01	The student knows what are the ways of improving professional competences in the field of corrosion and metal protection.	[SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work [SK2] Assessment of progress of work
	K6_U02	The student knows the methods of determining the corrosion rate and is able to assess the composition and type of construction material.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
	K6_W04	Can select a research method to solve the problem related to corrosion.	[SW1] Assessment of factual knowledge

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 engeneering 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 engeneering 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 lecture	60.0%	50.0%
	doing laboratory	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		