



Subject card

Subject name and code	, PG_00065825						
Field of study	Materials Engineering						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Specialty 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Corrosion and Electrochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Stefan Krakowiak				
	Teachers						
Lesson types and methods of instruction	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		8.0		37.0	75
Subject objectives	To provide the student with knowledge of the main technologies of corrosion protection: coating protection, cathodic protection, corrosion inhibitors, selection of construction materials.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K02] Is aware of the importance of non-technical aspects and effects of engineering, including the influence on the environment and resulting responsibility for the decisions.		The student collaborates with the team to solve design problems.		[SK1] Assessment of group work skills [SK4] Assessment of communication skills, including language correctness		
	[K7_U04] Can undertake a detailed analysis of the obtained results and develop a technical report or presentation, also in English.		The student defines the environmental hazards of an industrial structure. The student identifies the types of corrosion occurring in a given corrosive environment.		[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W05] Knows methods, techniques, tools and materials for solving complex engineering tasks relevant to materials engineering.		The student presents a project for corrosion protection of an industrial facility indicated by the instructor.		[SW1] Assessment of factual knowledge		
	[K7_W04] Has enhanced knowledge of materials sciences, within the scope required for describing and understanding the correlation between the chemical composition, structure and mechanical and physical properties.		The student defines the environmental hazards of an industrial structure. The student identifies the types of corrosion occurring in a given corrosive environment.		[SW1] Assessment of factual knowledge		

Subject contents	Cathodic protection of underground structures and offshore structures, cathodic protection technologies (galvanic anodes, external power source), protection criteria, anodic alloys, methods of realizing cathodic protection in practice. Protection against stray currents. Inhibitor protection, division of corrosion inhibitors, application. Selection of construction materials, review of modern materials used in industrial installations, resistance of construction materials in various environments		
Prerequisites and co-requisites	Knowledge of the basics of corrosion.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing the laboratory	100.0%	50.0%
	Passing the lectures	60.0%	50.0%
Recommended reading	Basic literature	on e-learning	
	Supplementary literature	on e-learning	
	eResources addresses	Podstawowe https://enauczanie.pg.edu.pl/moodle/course/view.php?id=1088 - It will be open in case of completion of the course Uzupełniające Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Principles of paint application. Potential criteria for cathodic protection. Galvanic anodes used to protect marine structures. Principles of selection of construction materials.		
Work placement	Not applicable		

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