



Subject card

Subject name and code	Introduction to Corrosion Protection, PG_00060887						
Field of study	Wprowadzenie do zabezpieczeń przeciwkorozyjnych						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
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	5		ECTS credits		3.0		
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. Stefan Krakowiak				
	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						
	eNauczanie source address: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=46562						
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		5.0		40.0	75
Subject objectives	The aim of this course is to introduce students to various types of corrosion and to identify methods for preventing them. Students will also become familiar with the general principles that should guide engineers involved in protecting steel structures against corrosion.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U08] is able to classify and apply knowledge of the driving forces of corrosion processes in different construction materials to the design of process installations and the selection of corrosion protection methods for installations		The student is able to diagnose corrosion of construction materials and The student is able to indicate factors influencing the development of corrosion and knows methods of limiting their impact on industrial structures.		[SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU2] Ocena umiejętności analizy informacji		
	[K6_W07] has knowledge of structural materials used in the chemical industry and their corrosion, corrosion monitoring and protection, and corrosion metrology		The student is able to diagnose corrosion of construction materials and is able to propose a method of protecting them against corrosion.		[SW1] Ocena wiedzy faktograficznej		
	[K6_K01] understands the need for continuing education, and is aware of the opportunities to improve professional, personal and social competences		The student understands the need for continuous improvement of professional skills		[SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce		
Subject contents	Course content – lecture A practical introduction to corrosion processes. Protection of steel structures with organic coatings. Environmental modification as a method of reducing corrosion. Electrochemical protection. Galvanic coatings. Course content – laboratory Structure of metals and alloys - metallography. The action of corrosion cells. The study and application of organic coatings. The application of electroplated coatings. Surface modification - conversion coatings.						

Prerequisites and co-requisites	Knowledge of the basics of electrochemistry and physical chemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing the laboratory	100.0%	50.0%
	Passing the lecture	60.0%	50.0%
Recommended reading	Basic literature	R. Juchniewicz, Anti-corrosion technology parts I and II; P. A. Schweitzer, Corrosion-of-Linings-Coatings-Cathodic-and-Inhibitor-Protection-and-Corrosion-Monitoring, CRC Press, Taylor & Francis Group, Amy Forsgren, Corrosion_Control_Through_Organic_Coatings, CRC Press, Taylor & Francis Group,	
	Supplementary literature	K. Żakowski, K. Darowicki - Cathodic Protection, Wydawnictwo PG A. Miszczyk, M.Szociński, K. Darowicki, Paint coatings for anticorrosion protection. Application guidelines and quality control., Wydawnictwo PG	
	eResources addresses		
Example issues/ example questions/ tasks being completed	1. cathodic protection; 2. coating protection; 3. corrosive environment modifications; 4. structure design with corrosion hazards in mind.		
Practical activities within the subject	Not applicable		

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