



Subject card

Subject name and code	INTRODUCTION TO CORROSION PROTECTION, PG_00064405						
Field of study	Chemistry						
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		2.0		
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		2.0		18.0	50
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_W04] identifies the conditions of chemical processes occurring in the analysed systems through the appropriate selection of methods to solve them, by taking into account the interdependence of the structure and properties of key materials in sustainable development technologies		has the knowledge necessary to minimize the influence of chemical processes occurring in industrial installations that affect the integrity of equipment.		[SW1] Assessment of factual knowledge		
	[K6_U03] operates typical laboratory apparatus and carries out analyses to identify chemical compounds and materials, integrating computational methods and application software		is able to perform measurements in a corrosive system and present reliable results of their analysis.		[SU1] Assessment of task fulfilment		
	[K6_K04] is able to identify and resolve dilemmas related to the chemical engineering profession while respecting traditions and ethical principles		is aware of the importance of his/her activities in maintaining the integrity of the devices for which he/she will be responsible.		[SK1] Assessment of group work skills		

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			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing the entrance tests and completing all laboratory classes	100.0%	50.0%
	Written examination of the lecture material	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	cathodic protection; coating protection; corrosive environment modifications; structure design with corrosion hazards in mind.		
Practical activities within the subject	Not applicable		

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