



Subject card

Subject name and code	Corrosion Protection, PG_00059960						
Field of study	Environmental Engineering						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group		Obligatory subject group in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Aleksander Perliński				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	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		5.0		19.0	54
Subject objectives	The purpose of the course is acquaint students with the problem of corrosion of metal parts causing loss of capacity, stability or functionality of technical systems and sanitary systems. Types of corrosion will be presented and the process of their course. Ways of metal protection by coatings and metallization will be discussed. Students learn the process of selection of the corrosion protection system for the selected components.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U08] is able to assess risks in the implementation of engineering projects and implement appropriate safety rules		Student knows threats during anti-corrosion works		[SU3] Assessment of ability to use knowledge gained from the subject		
	K7_W05		Student knows principles of design and application related to metal structures anti-corrosion protection		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation		
	[K7_W02] has broadened and well-ordered knowledge of the current law on construction, water, environmental protection and planning and spatial planning.		Student understands the code requirements related to anti-corrosion protection of metal structures		[SW1] Assessment of factual knowledge		

Subject contents	Course content – lecture Lecture plan: Steel as a structural material - properties, production, steel products, structures. Phenomena of corrosion. Types of corrosion. Electrochemical and chemical corrosion. Corrosion traps. Corrosion environmental classification. Steel with improved anti corrosion properties. Steel surface treatment for anti corrosion protection. Anti corrosion protection with paints and galvanising. Anti corrosion protection testing. Protection with inhibitors and electrochemical protection of structures. Tutorial plan: "Corrosion traps" - student tutorial with Steel Structures Catalogue. "Structure preparation for hot dip galvanising" - student tutorial with Steel Structures Catalogue "Structure corrosion examples and the anti-corrosion method proposal" - presentation prepared by the groups of students. "Corrosion experiment" - the rate of corrosion assessment performed on steel elements in salt, acid and basic solutions - laboratory.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test of lecture content	60.0%	60.0%
	presentation	60.0%	24.0%
	exercise (2 x)	60.0%	16.0%
Recommended reading	Basic literature	1. PN EN ISO 12944 - Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part. 1-7 2. PN EN ISO 1461 Zinc coatings applied to steel by immersion (galvanizing unit) - Requirements and testing 3. BS EN ISO 8501 - Preparation of steel substrates before application of paints and related products. Visual assessment of surface cleanliness. Part 1. Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings. Part 2 preparation of previously coated steel substrates after localized removal of previous coatings. 4. Praca zbiorowa "Technika przeciwkorozyjna. Część 1", WSZIP, Warszawa 1989 5. Praca zbiorowa "Technika przeciwkorozyjna. Część 2", WSZIP, Warszawa 1976	
	Supplementary literature	1. Praca zbiorowa "Ochrona przed korozją. Poradnik", WKiŁ, Warszawa 1986 2. Chmielewski A.: "Problemy z korozją. zabezpieczenia przeciwkorozyjne konstrukcji stalowych - powłoki malarskie", Wyd. PALMAPress, Wrocław 1997	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Explain what is a pitting corrosion. Explain the Sandelin effect What is a "corrosion trap"? Draw an example of "a corrosion trap".		
Practical activities within the subject	Not applicable		