

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00059960								
Field of study	Environmental Engineering								
Date of commencement of studies	February 2024		Academic year of realisation of subject			2024/2025			
Education level	second-cycle studies		Subject group			Obligatory subject group in the field of study			
Mode of study	Full-time studies		Mode of de	Mode of delivery			university		
Year of study	2		Language of instruction			Polish			
Semester of study	3		ECTS credits			2.0			
Learning profile	general academic pro	general academic profile		Assessment form			sment		
Conducting unit	Faculty of Civil and Environmental Engineering								
Name and surname	Subject supervisor		dr inż. Aleksar	nder Perliński					
of lecturer (lecturers)	Teachers		<u> </u>						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	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 ir classes includ plan	i didactic Participation in ed in study 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_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			
	K7_W05		Student knows principles of design and application related to metal structures anti-corrosion protection			[SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects			
	[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			

Subject contents	Lecture plan: Steel as a structural material - properties, production, steel spoducts, 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 inhbitors 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 is salt, acid and basic solutions - laboratory.							
Prerequisites and co-requisites								
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade					
and criteria	exercise (2 x)	60.0%	16.0%					
	presentation	60.0%	24.0%					
	test of lecture content	60.0%	60.0%					
Recommended reading	Basic literature	 PN EN ISO 12944 - Paints and varnishes - Corrosion protections teel structures by protective paint systems - Part. 1-7 PN EN ISO 1461 Zinc coatings applied to steel by immersion (galvanizing unit) - Requirements and testing 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 grade uncoated steel substrates and of steel substrates after overall removal of previous coatings. Part 2 preparation of previous coatings. Praca zbiorowa "Technika przeciwkorozyjna. Część 1", WSZiP Warszawa 1989 Praca zbiorowa "Technika przeciwkorozyjna. Część 2", WSZiP Warszawa 1976 						
	Supplementary literature	 Praca zbiorowa "Ochrona przed Warszawa 1986 Chmielewski A.:"Problemy z ko przeciowkorozyjne konstrukcji s Wyd. PALMApress, Wrocław 19 	d korozją. Poradnik", WKiŁ, rozją. zabezpieczenia stalowych - powłoki malarskie", 997					
	eResources addresses Adresy na platformie eNauczanie:							
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".							
Work placement	Not applicable							

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