



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 to 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	<p>Course content – lecture Lecture plan:</p> <p>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.</p> <p>Tutorial plan:</p> <p>"Corrosion traps" - student tutorial with Steel Structures Catalogue.</p> <p>"Structure preparation for hot dip galvanising" - student tutorial with Steel Structures Catalogue</p> <p>"Structure corrosion examples and the anti-corrosion method proposal" - presentation prepared by the groups of students.</p> <p>"Corrosion experiment" - the rate of corrosion assessment performed on steel elements in salt, acid and basic solutions - laboratory.</p>												
Prerequisites and co-requisites													
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="449 1012 774 1046">Subject passing criteria</th><th data-bbox="774 1012 1140 1046">Passing threshold</th><th data-bbox="1140 1012 1483 1046">Percentage of the final grade</th></tr> </thead> <tbody> <tr> <td data-bbox="449 1046 774 1080">test of lecture content</td><td data-bbox="774 1046 1140 1080">60.0%</td><td data-bbox="1140 1046 1483 1080">60.0%</td></tr> <tr> <td data-bbox="449 1080 774 1114">presentation</td><td data-bbox="774 1080 1140 1114">60.0%</td><td data-bbox="1140 1080 1483 1114">24.0%</td></tr> <tr> <td data-bbox="449 1114 774 1147">exercise (2 x)</td><td data-bbox="774 1114 1140 1147">60.0%</td><td data-bbox="1140 1114 1483 1147">16.0%</td></tr> </tbody> </table>	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%
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Recommended reading	<p>Basic literature</p> <ol style="list-style-type: none"> <li data-bbox="798 1152 1483 1208">PN EN ISO 12944 - Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part. 1-7</li> <li data-bbox="798 1208 1483 1264">PN EN ISO 1461 Zinc coatings applied to steel by immersion (galvanizing unit) - Requirements and testing</li> <li data-bbox="798 1264 1483 1432">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.</li> <li data-bbox="798 1432 1483 1466">Praca zbiorowa "Technika przeciwkorozjna. Część 1", WSZiP, Warszawa 1989</li> <li data-bbox="798 1466 1483 1522">Praca zbiorowa "Technika przeciwkorozjna. Część 2", WSZiP, Warszawa 1976</li> </ol> <p>Supplementary literature</p> <ol style="list-style-type: none"> <li data-bbox="798 1534 1483 1590">Praca zbiorowa "Ochrona przed korozją. Poradnik", WKiŁ, Warszawa 1986</li> <li data-bbox="798 1590 1483 1646">Chmielewski A.: "Problemy z korozją. zabezpieczenia przeciwkorozjne konstrukcji stalowych - powłoki malarskie", Wyd. PALMApress, Wrocław 1997</li> </ol> <p>eResources addresses</p>												
Example issues/ example questions/ tasks being completed	<p>Explain what is a pitting corrosion.</p> <p>Explain the Sandelin effect</p> <p>What is a "corrosion trap"? Draw an example of "a corrosion trap".</p>												
Practical activites within the subject	Not applicable												