



Subject card

Subject name and code	Failure Analysis, PG_00039090						
Field of study	Chemistry in Construction Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2021/2022		
Education level	first-cycle studies		Subject group		Obligatory subject group in the field of study 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	2		Language of instruction		Polish		
Semester of study	4		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Electrochemistry, Corrosion and Materials Engineering -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Paweł Ślepski				
	Teachers		dr hab. inż. Paweł Ślepski dr inż. Łukasz Gawel				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie: Analiza uszkodzeń korozyjnych - Moodle ID: 23113 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23113						
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	45		5.0		25.0	75
Subject objectives	The student properly investigates objects damaged by the corrosion processes. The student is able to prepare analysis of corrosion damage report.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_K03		The student is able to use the necessary information to identify corrosion damage and prepare a report.		[SK5] Assessment of ability to solve problems that arise in practice		
	K6_W08		The student presents typical dangers for material caused by the given environment		[SW1] Assessment of factual knowledge		
Subject contents	Analysis of corrosion damages generated by different corrosion processes (general corrosion, galvanic corrosion, pitting corrosion, crevice corrosion, intergranular corrosion, stress corrosion cracking, etc.). General description of particular corrosion processes. Review of common places of corrosion damages in industrial systems. Methods of failure analysis. Elements of prevention. Preparation of reports						
Prerequisites and co-requisites	Basic knowledge of electrochemistry						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	reports		100.0%		40.0%		
	written exam		50.0%		60.0%		
Recommended reading	Basic literature		Practical Engineering Failure Analysis, H.M. Tawancy, A. Ul-Hamid, N.M. Abbas, Marcel Dekker, New York 2004				

	Supplementary literature	Fundamentals of Metallic Corrosion, P.A. Schweitzer, CRC Press, New York 2006
	eResources addresses	Analiza uszkodzeń korozyjnych - Moodle ID: 23113 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=23113
Example issues/ example questions/ tasks being completed	Corrosion of metal elements in industrial plants Corrosion of heat exchangers Corrosion of pipework in the ground Electrochemical corrosion in reinforced concrete structures	
Work placement	Not applicable	