GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Corrosion failure analysis, PG_00048986		
Field of study	Corrosion		
Date of commencement of studies	February 2024	Academic year of realisation of subject	2023/2024
Education level	second-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	1	Language of instruction	Polish
Semester of study	1	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
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. Krzysztof Żakowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	30.0	30.0	0.0	60

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	60	5.0	35.0	100

Subject objectives

The aim of this subject is to acquaint students with procedures empoyed in analysis of failures of components/objects, to perform failure investigations (corrosion tests, chemical analyses, mechanical tests, microscopic examinations etc.) in order to determine the cause of failure, to write a failure analysis raport.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_U03	Students applies adequate measurement technique for various types of degradation	[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
K7_W04	Students carries out adequate corrosion studies and chemical analyses	[SW2] Assessment of knowledge contained in presentation
K7_K02	Students works in team, adopting various roles	[SK1] Assessment of group work skills
K7_K04	Student analyzes various solutions to the problem	[SK1] Assessment of group work skills [SK3] Assessment of ability to organize work

Subject contents

Analysis of corrosion failure caused by various corrosion processes (general, galvanic, concentration, pitting, fracture, intergranular corrosion, corrosion cracking, etc.). General characteristics of particular corrosion phenomena. Overview of the most common locations of corrosion failure in industrial installations. Failure analysis methods. Forms of corrosion prevention. Familiarization with corrosive damage databases. Building analyse report.

Prerequisites and co-requisites

Knowledge of various corrosion processes and mechanisms, knowledge of electrochemical techniques

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Failure analysis raport	100.0%	100.0%

Recommended reading

Basic literature	1. Practical Engineering Failure Analysis, H.M. Tawancy, A. Ul-Hamid, N.M. Abbas, Marcel Dekker, New York 2004 2. Fundamentals of Metallic Corrosion, P.A. Schweitzer, CRC Press, New York 2006
Supplementary literature	Engineering Failure Analysis - ISI journa

	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	The influence of corrosive environment Material composition analysis Operating conditions Failure analysis	
Work placement	Not applicable	