GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Corrosion measurement, PG_00060767		
Field of study	Chemical Technology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2029/2030
Education level	first-cycle studies	Subject group	Optional subject group 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	4	Language of instruction	Polish
Semester of study	7	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Corrosion and Electrochemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Paweł Ślepski	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	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	2.0	18.0	50

Subject objectives	The aim of this course is to introduce students to the topic of corrosion and familiarize them with the principles and methods of measuring corrosion processes in various environments, as well as with techniques for assessing the technical condition of materials and structures exposed to corrosion. Students will acquire the ability to select appropriate testing methods (electrochemical, gravimetric, potentiometric, etc.), interpret measurement results, and formulate conclusions necessary for designing anticorrosion protection and assessing the operational durability of equipment.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W07] Has knowledge of raw materials and technologies in the chemicaland polymer industries, also covering issues of corrosion and material protection.	has broad and structured knowledge of raw materials used in the chemical and polymer industries, knows their properties, applications and processing methods, and understands the mechanisms of corrosion, its effects on various materials and available techniques and technologies for corrosion protection used in modern industrial processes.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
[K6_W05] Has knowledge of electrical engineering, automation and computer science, including the operation of measurement and control systems	has broad, structured knowledge in the field of electrical engineering, automation and computer science, covering both the principles of operation and cooperation of elements of measurement and control systems, as well as the structure, functions and method of data processing in modern process control and supervision systems.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
[K6_U08] Is able to select elements of automatic control systems for simple technological processes and use computer programs to control and optimize chemical processes.	is able to select control system components for a simple technological process and use software to simulate, control and optimize chemical processes.	[SU4] Assessment of ability to use methods and tools
[K6_K01] Is aware of the social role of a technical university graduate and understands the need to provide information about technical achievements and engineering activities to society, including through the media.	is aware of the social role of an engineer, understands the importance of responsible transfer of knowledge about technical achievements and engineering activities, is able to communicate them in a way that is understandable to various recipients, including through the media, and actively promotes technical knowledge and innovation in social life.	[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness

Subject contents

Course content – lecture
Basic concepts of corrosion and corrosion protection.
Chemical and electrochemical corrosion.
Environmental factors affecting corrosion intensity.
Examples of corrosion in industrial installations.
Principles of anticorrosion protection.
Types of corrosion protective coatings.
Methods for testing coating quality.

Course content – laboratory
Determining Corrosion Rate and Corrosion Potential
Gravimetric Techniques
Electrochemical Methods
Measuring Protective Coating Thickness
Basic LabView Programming

Prerequisites and co-requisites

Students should have a basic understanding of general and physical chemistry, particularly electrochemical processes, as well as the fundamentals of materials science and materials mechanics. Knowledge of basic concepts in thermodynamics and chemical kinetics, as well as the ability to perform simple physicochemical calculations, is recommended. Students should be familiar with basic laboratory equipment and be familiar with laboratory safety regulations.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Laboratory (reports)	51.0%	30.0%
Lecture (exam)	51.0%	70.0%

Recommended reading

Basic literature	Technika przeciwkorozyjna, praca zbiorowa pod redakcją Romulada Juchniewicza, PWSZ 1973 Techniki przeciwkorozyjne, Józef Mikuła, Politechnika Rzeszowska 1992 Podstawy teoretyczne i aspekty praktyczne zjawiska korozji, T. Hryniewicz, K. Rokosz, Politechnika Koszalińska 2010
Supplementary literature	Eksperymentalna chemia fizyczna, praca zbiorowa, PWN 1982
eResources addresses	

Example issues/ example questions/ tasks being completed

Types and mechanisms of corrosion: chemical, electrochemical, galvanic, crevice, and stress corrosion.
Thermodynamic and kinetic determinants of corrosion processes.
Electrochemical potential, corrosion current, and polarization resistance: their significance and interpretation.

Practical activites within the subject

Not applicable

Document generated electronically. Does not require a seal or signature.