GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Electrochemistry, PG_00061917		
Field of study	Materials Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
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	3	Language of instruction	Polish
Semester of study	5	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Corrosion and Electrochemistry -> Faculty of Chemistry -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Paweł Ślepski	
	Teachers	dr hab. inż. Paweł Ślepski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	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	1.0	19.0	50

Subject objectives

familiarising students with the phenomena occurring at the interface between the electrode and the electrolyte

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U01] Can properly use selected analytical, simulation and experimental methods, as well as devices for measuring the fundamental properties of materials and technological processes.	familiarizing students with the phenomena occurring at the interface between a metallic electrode and an electrolyte	[SU1] Assessment of task fulfilment
[K6_W02] has knowledge of physics and chemistry, useful for formulating and solving simple problems within the scope of materials science	familiarizing students with the phenomena occurring at the interface between a metallic electrode and an electrolyte	[SW3] Assessment of knowledge contained in written work and projects
[K6_K01] Understands the need to improve professional and personal competencies; is conscious of own limitations and knows when to turn to experts, properly establishes priorities helping to accomplish tasks defined by oneself or others.	familiarizing students with the phenomena occurring at the interface between a metallic electrode and an electrolyte	[SK2] Assessment of progress of work

Subject contents

Water; pH; electrolyte solutions; electrolyte conductivity; transport in electrolyte solutions; electrical potential, internal and external; double electric layer; polarisation; reaction current, Butler-Volmer equation; electrochemical measurement methods; examples of electrode processes.

Prerequisites and co-requisites

Basics of thermodynamics and chemical kinetics.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
final test	60.0%	100.0%

Recommended reading	Basic literature	A. Kisza, Elektrochemia t.I i II , WNT, Warszawa 2000 Z. Galus, Elektroanalityczne metody wyznaczania stałych fizykochemicznych, PWN Warszawa 1979 Z. Galus, Teoretyczne podstawy elektroanalizy chemicznej. PWN Warszawa 1977
	Supplementary literature	No requirements
	eResources addresses	
Example issues/ example questions/ tasks being completed	Chemical and electrochemical processes determination of thermodynamic parameters activation and diffusion control	
Work placement	Not applicable	

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