



Subject card

Subject name and code	Electrochemistry, PG_00061917						
Field of study	Materials Engineering, Materials Engineering						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
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 -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Paweł Ślepski				
	Teachers		dr hab. inż. Paweł Ślepski				
Lesson types	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						
	eNauczanie source addresses: Moodle ID: 2496 Elektrochemia https://enauczanie.pg.edu.pl/2025/course/view.php?id=2496						
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	familiarizing students with the phenomena occurring at the interface between a metallic electrode and an electrolyte						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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		
	[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_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		

Subject contents	Course content – lecture		
	• Properties of electrolytes • Inner, outer and surface potential. • Electrochemical cells • The electric double layer and its structure. • Basic electrochemical processes. • Transport in an electrolyte • Construction and operation of a lead-acid battery. • Electrochemical techniques.		
Prerequisites and co-requisites	Basics of thermodynamics and chemical kinetics.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written exam	60.0%	100.0%
Recommended reading	Basic literature	• A. Kiswa, 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	W. Browne, Elektrochemia, PWN, 2022	
	eResources addresses		
Example issues/ example questions/ tasks being completed	• The mechanism of hydrogen evolution at the cathode • The use of CV curves in analysing the reversibility of the process • The use of electrolyte conductivity measurements		
Practical activities within the subject	Not applicable		

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