



Subject card

Subject name and code	Electrochemistry laboratory, PG_00061925						
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	6	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 Dominika Parasińska mgr inż. Zuzanna Zarach					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
eNauczenie source address: https://enauczenie.pg.edu.pl/2025/course/view.php?id=4529							
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	3.0		17.0		50
Subject objectives	Examination of principal electrochemical processes using various measuring techniques.						
Learning outcomes	Course outcome	Subject outcome		Method of verification			
	[K6_W06] Knows selected methods, techniques, tools and materials used in solving simple engineering problems within the scope of materials engineering.	Student understands principal electrochemical techniques		[SW1] Assessment of factual knowledge			
	[K6_W02] has knowledge of physics and chemistry, useful for formulating and solving simple problems within the scope of materials science	The student is able to choose the appropriate measurement technique for material analysis		[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.	Student is able to carry out electrochemical measurements		[SU3] Assessment of ability to use knowledge gained from the subject				

Subject contents	Course content – laboratory 1. Electrical equivalent circuits 2. Reference electrodes 3. Thermodynamic stability of water 4. Electric double layer 5. Hydrogen evolution 6. Chronopotentiometry 7. Chronovoltamperometry I 8. Electrochemical impedance spectroscopy (EIS) I 9. EIS II 10. Chronovoltamperometry II 11. Lead acid batteries 12. Electropolymerization		
Prerequisites and co-requisites	Completion of the Electrochemistry I course		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	tests	60.0%	50.0%
	raports	60.0%	50.0%
Recommended reading	Basic literature		- materials available at www.enauczanie.pg.edu.pl (in Polish) - R. Holze, Experimental Electrochemistry, Wiley-VCH Verlag GmbH, 2019 V.S. Bagotsky, Fundamentals of Electrochemistry, John Wiley & Sons Inc, 2005
	Supplementary literature		- Elektrochemia I lectures - W. R Browne, Elektrochemia, PWN, 2022
	eResources addresses		
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> • hydrogen evolution mechanism • overpotential for hydrogen and oxygen evolution in aqueous solutions • application of cyclic voltametry • methods for determining the capacity of supercapacitors 		
Practical activities within the subject	Not applicable		

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