



Subject card

Subject name and code	Electrochemical power sources, PG_00058348						
Field of study	Hydrogen Technologies and Electromobility						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2027/2028		
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	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
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. Artur Zieliński					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45	8.0	72.0	125		
Subject objectives	Familiarization with the principles of operation and practical implementation of various electrochemical energy sources.						
Learning outcomes	Course outcome	Subject outcome		Method of verification			
	[K6_W04] knows the properties of materials used in solving simple engineering tasks related to the field of study, in particular has knowledge in the field of materials science and is able to relate the properties of materials with their structure and composition, knows the theoretical description of phenomena occurring in materials subjected to external factors						
	[K6_U02] can work individually and in a team, can communicate using various techniques in a professional environment, as well as document and analyze the results of their work, can estimate the time needed to perform the entrusted task	The student is able to translate theoretical knowledge about the thermodynamics and kinetics of electrode processes into understanding the operation of various energy sources.		[SU4] Assessment of ability to use methods and tools			
Subject contents	Course content – lecture Physicochemistry of electrode processes. Batteries. Supercapacitors. Fuel cells. Photovoltaic cells.						
Prerequisites and co-requisites	Electrochemistry, physical chemistry						
Assessment methods and criteria	Subject passing criteria	Passing threshold		Percentage of the final grade			
	exam	60.0%		50.0%			
	lab	60.0%		50.0%			

Recommended reading	Basic literature	Electrochemical Power Sources: Batteries, Fuel Cells, and Supercapacitors  By Vladimir S. Bagotsky, Alexander M. Skundin and Yury M. Volfkovich (A.N. Frumkin Institute of Physical Chemistry and Electrochemistry of the Russian Academy of Science, Russia), John Wiley & Sons Inc, New Jersey, USA, 2015, 372 pages, ISBN: 978-1-118-46023-6
	Supplementary literature	Publications from the JCR list
	eResources addresses	
Example issues/ example questions/ tasks being completed	Principles of operation of fuel cells  Corrosion cells	
Practical activities within the subject	Not applicable	

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