



## Subject card

Subject name and code	Electromobility II, PG_00058675						
Field of study	Hydrogen Technologies and Electromobility						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2028/2029	
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				3.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Electrified Transportation -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Leszek Jarzębowicz					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	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	6.0	24.0	75		
Subject objectives	Gaining knowledge about issues related to electromobility.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W06] knows the construction and operation of transformers, electronic circuits, electrical machines, low and high temperature electrolysers, electrical drive systems, their modeling and industrial applications; knows the principles of the processing, use and rational use of electricity, including the principles of electric traction in various transport systems, knows the hazards from electrical equipment						
	[K6_U03] can formulate a specification of engineering tasks of a practical nature related to the field of study, can prepare and present a presentation on the problems and results of an engineering task						
	[K6_K02] can work in a group taking on different roles in it	The student is able to cooperate with other members of the laboratory group.			[SK2] Assessment of progress of work		
Subject contents	Course content – lecture Vehicle electric drive systems. Active safety systems. Energy consumption of electric vehicles. Vehicle energy storages. Electric and hybrid-electric cars. Autonomously driven vehicles. Vehicle charging systems and standards. Vehicle and infrastructure IT networks.						
Prerequisites and co-requisites	Basic knowledge of physics, electrical machines, power electronics, electric drives, electrical engineering in transportation. Ability to solve simple electrical circuits.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Raports and preparation for laboratory	60.0%	30.0%
	Test on the lecture part	60.0%	70.0%
Recommended reading	Basic literature	<p>Ehsani M., Gao Y., Longo S., Ebrahimi K.: Modern Electric, Hybrid Electric, and Fuel Cell Vehicles. 3rd Edition. CRC Press, 2018</p> <p>Hayes J.G., Goodarzi G.A.: Electric Powertrain. Energy Systems, Power Electronics and Drives for Hybrid, Electric and Fuel Cell Vehicles. Wiley 2018.</p> <p>Pistoia G., Liaw B.: Behaviour of Lithium-Ion Batteries in Electric Vehicles: Battery Health, Performance, Safety, and Cost. Springer 2018.</p> <p>Găiceanu M. (red.): Self-Driving Vehicles and Enabling Technologies. IntechOpen 2021</p>	
	Supplementary literature	Karwowski K. (red.): Energetyka transportu zelektryfikowanego. Zbiór zadań problemowych. Wyd. PG, 2023.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>Discuss the types and construction of hybrid combustion-electric cars.</p> <p>List the electric car charging standards used around the world and present their basic features.</p>		
Practical activities within the subject	Not applicable		

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