



Subject card

Subject name and code	Electromobility, PG_00070256						
Field of study	ELEKTROMOBILNOŚĆ						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		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	30.0	0.0	15.0	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		5.0		25.0	75
Subject objectives	The aim of the course is to acquire knowledge in selected issues of electromobility. The student will learn about the construction and operation of electric and hybrid vehicles, as well as the elements of infrastructure that enable the operation of these vehicles.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W02] has an in-depth and structured knowledge of electrical measurements electrical measurements, the methods and equipment used for electrical measurements of non-electrical quantities, he/she knows the principles of testing operation tests of electrical equipment, has a structured knowledge of electricity quality issues		Carries out recording of drivetrain variables in electric club car.		[SW1] Ocena wiedzy faktograficznej		
	[K7_U03] is able to obtain information from literature, databases and other sources, also in English, draw conclusions, formulate and fully justify opinions. substantiate opinions; is able to identify directions for further learning and implement the process of self-education		Prepares conclusion based on analysis carried out during lab classes.		[SU1] Ocena realizacji zadania		
	[K7_U02] is able to prepare and deliver a short oral presentation on a selected technical topic		Prepares and delivers presentation on selected topic related to electromobility.		[SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania		
Subject contents	Course content – lecture Electric drive systems. Energy storage. Energy consumption. Hybrid electric cars. Electric cars. Electric vehicles charging. Environmental aspects of the automotive industry. Autonomous vehicle driving. Active safety systems.						
	Course content – laboratory Recording and analysis of electric vehicle parameters. Traction control of a multi-motor vehicle. Speed profile shaping. Energy analysis of a car. Energy analysis of a train. Analysis of the ABS system.						
Prerequisites and co-requisites	First level studies based knowledge in the fields of: electrical engineering, electric machines, power electronics and electric drives.						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory: raports and discussion	60.0%	50.0%
	Lecture: short oral presentation	60.0%	50.0%
Recommended reading	Basic literature	1. Dentom T.: Automobile Electrical and Electronic Systems. Taylor & Francis, 2017. 2. Hayes J.G., Goodarzi G.A.: Electric Powertrain. Energy Systems, Power Electronics and Drives for Hybrid, Electric and Fuel Cell Vehicles. Wiley 2018. 3. Ehsani M., Gao Y., Longo S., Ebrahimi K.: Modern Electric, Hybrid Electric, and Fuel Cell Vehicles. 3rd Edition. CRC Press, 2018. 4. Siłka W.: Teoria ruchu samochodu. Warszawa: WNT 2002. 5. Karwowski K. (red.): Energetyka transportu zelektryfikowanego. Poradnik inżyniera. Wyd. PG, 2020.	
	Supplementary literature	1. Skibicki J.: Pojazdy elektryczne. Część 1. Wydawnictwo PG, 2010 2. Skibicki J.: Pojazdy elektryczne. Część 2. Wydawnictwo PG, 2012	
	eResources addresses		
	Example issues/ example questions/ tasks being completed	List and describe standards used in electric vehicles charging stations in Europe. Discuss the types and construction of hybrid combustion-electric cars.	
Practical activites within the subject	Not applicable		

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