GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Electromobility, PG_00070256		
Field of study	Electrical Engineering, Automation, Robotics and Control Systems		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2026/2027
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_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] Assessment of task fulfilment
[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] Assessment of factual knowledge
[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] Assessment of ability to present the results of task

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
	Lecture: short oral presentation	60.0%	50.0%
	Laboratory: raports and discussion	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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