GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	ELECTROMOBILITY, PG_00036790		
Field of study	Electrical Engineering		
Date of commencement of studies	February 2023	Academic year of realisation of subject	2023/2024
Education level	second-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Electrical Engineering of Transport -> Faculty of Electrical and Control Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Leszek Jarzębowicz	
	Teachers	dr hab. inż. Leszek Jarzębowicz dr inż. Aleksander Jakubowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

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	30	5.0	15.0	50

Subject objectives

Gaining knowledge regarding electromobility.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_W02	The student knows the difference between the energy consumption of vehicle movement and the total energy consumption and knows the methodology for determining them.	[SW1] Assessment of factual knowledge
K7_W01	The student is able to develop and use an algorithm for numerical integration of vehicle power or speed.	[SW3] Assessment of knowledge contained in written work and projects
K7_U02	The student is able to answer questions about the current laboratory exercise.	[SU2] Assessment of ability to analyse information
K7_U03	The student finds sources of information regarding selected aspects of laboratory exercises and uses them to interpret the results.	[SU1] Assessment of task fulfilment

Subject contents

Traction electric drives. Energy consumption of electric vehicles. Hybrid electric cars. Electric cars charging. Electromechanical equipment of electric and hybrid motor vehicles. Electric energy storage devices. Construction and diagnostics of ignition and injection systems. Ecological aspects of automotive development. Vehicle traction control systems.

Prerequisites and co-requisites

Accomplihed course of "Electrical engineering in Transport".

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Lecture part test	50.0%	60.0%
Reports and discussion	50.0%	40.0%

Recommended reading	Basic literature	1. Ehsani M., Gao Y., Longo S., Ebrahimi K.: Modern Electric, Hybrid Electric, and Fuel Cell Vehicles. 3rd Edition. CRC Press, 2018 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. Pistoia G., Liaw B.: Behaviour of Lithium-Ion Batteries in Electric Vehicles: Battery Health, Performance, Safety, and Cost. Springer 2018. 4. Găiceanu M.: Self-Driving Vehicles and Enabling Technologies. IntechOpen 2021.
	Supplementary literature	Karwowski K. (red.): Energetyka transportu zelektryfikowanego. Zbiór zadań problemowych. Wyd. PG, 2023.
	eResources addresses	Adresy na platformie eNauczanie: Elektromobilność [2023/24] - Moodle ID: 27899 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27899
Example issues/ example questions/ tasks being completed	• List the communication standards that are suitable for controlling vehicle's drivetrain. • Discuss the motivation behind introducing constant-power operating region in vehicles.	
Work placement	Not applicable	