

GDAŃSK UNIVERSITY

Subject card

Subject name and code	Vehicle Equipment and Automation, PG_00039932								
Field of study	Mechanical Engineering, Mechanical Engineering								
Date of commencement of studies	October 2020		Academic year of realisation of subject			2022/2023			
Education level	first-cycle studies		Subject group			Optional subject group 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	6		ECTS credits			3.0			
Learning profile	general academic profile		Assessment form			exam			
Conducting unit	Institute of Mechanics	Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology							
Name and surname	Subject supervisor	dr hab. inż. Grzegorz Ronowski							
of lecturer (lecturers)	Teachers		dr inż. Wojciech Owczarzak						
			dr hab. inż. G	vski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	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 classes includ plan	I didactic Participation in consultation hours		Self-study		SUM		
	Number of study hours	45		6.0				75	
Subject objectives	The aim of the course is to introduce students to issues related to the construction and exploitation ofelectrical and electronic systems of modern vehicles and basic automated systems used in these vehicles.								
Learning outcomes	Course outcome		Subject outcome			Method of verification			
	[K6_U05] is able to plant an experiment within the range of measuring the basic operating parameters of mechanical devices using a specialized equipment, interpret the results and reach the correct conclusions		The student has basic knowledge for selected devices electrotechnical vehicle automotive.			[SU1] Assessment of task fulfilment			
	[K6_W06] possesses elementary knowledge on automatics and robotics of mechanical systems		The student has a basic covering the basics electrical engineering.			[SW1] Assessment of factual knowledge			
	[K6_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle		The student has basic knowledge including the principle of operation selected items electrotechnical vehicle automotive.			[SW1] Assessment of factual knowledge			

Subject contents	DC circuits. AC circuits. The overall concept of the electrical installation in vehicles. Wires, cables, pipeconnectors, relays, meters, fuses. The balance of power for the vehicle electrical system. Battery, its design,operation, service. Starters combustion engines, their construction and diagnostics. Power supply ofelectricity. Dynamos and alternators. Voltage Regulators electromechanical and electronic. Diagnosis ofpower systems. Ignition Systems classic. Electronic ignition systems. Spark plugs. Ignition advance. Injection-ignition systems, the construction, operation and diagnostics. Exhaust emission control systems.On-board computer. Vehicle lighting. Construction spotlight. High beam, low beam, fog and searchlights.Headlights unconventional. The "smart" headlamps. Antiblock brake systems - ABS. Anti-skid systems - TC.Signaling devices emergency vehicles.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	Exam	56.0%	100.0%				
Recommended reading	Basic literature	Konopiński M. "Elektronika w technice motoryzacyjnej"Ocioszyński J. "Elektrotechnika i elektronika pojazdówsamochodowych"Merkisz J., Mazurek S. "Pokładowe systemy diagnostyczne pojazdówsamochodowych"					
	Supplementary literature	Pr. zbior. "Bosch - informator motoryzacyjny"Pr. zbior. "Automotive Electric/Electronic Systems"					
	eResources addresses	Adresy na platformie eNauczanie:					
Example issues/ example questions/ tasks being completed	Construction of the spark plug.Construction of alternator.The principle of operation of the ignition system.						
Work placement	Not applicable						