GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mechatronics, PG_00060466		
Field of study	Mechanical and Naval Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
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	Part-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Piotr Mioduszewski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	9.0	0.0	18.0	0.0	0.0	27

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	27	6.0	67.0	100

Subject objectives

Familiarizing students with issues related to the construction and operation of mechatronic systems using examples of systems available in modern vehicles

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W06] possesses knowledge on automatics and robotics of mechanical systems	The student applies his general knowledge in the field of automation and robotics in the operation and maintenance of mechatronic systems.	[SW1] Assessment of factual knowledge
[K6_W10] possesses knowledge on electronics and electrical engineering	The student knows the structure of mechatronic systems and explains the principles of operation of these systems.	[SW1] Assessment of factual knowledge
[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 is able to perform diagnostics of mechatronic systems used in vehicles.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information

Subject contents

Controller area network, communication systems in vehicles. Sensors and controllers used in vehicles. Active and passive safety systems in vehicles (braking, traction control, skidding). Vehicle lighting systems (intelligent headlights). Driving and travelling comfort systems (line assist, park assist, adaptive cruise control, information, navigation, vehicle theft protection). Active vehicle suspension systems. Modern steering systems. Automatic gearboxes.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Performing laboratory tasks	75.0%	30.0%
Test	55.0%	70.0%

Recommended reading	Basic literature	Bosch Automotive Handbook 6th Edition, Bentley Publishers, USA, 2005 The Mechatronics Handbook By Robert H. Bishop, CRC Press, 2002. Current articles on solutions for mechatronic systems in vehicles.
	Supplementary literature	Mechatronics and the Design of Intelligent Machines and Systems By David A. Bradley, CRC Press, 2000
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	They will be given during lectures	
Work placement	Not applicable	

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