GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mechatronics in vehicles and heavy machinery, PG_00005428		
Field of study	Mechatronics, Mechatronics		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2022/2023
Education level	first-cycle studies	Subject group	
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Machine Design and Vehicles -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Piotr Mioduszewski	
	Teachers	dr hab. inż. Piotr Mioduszewski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	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	0.0	0.0	30

Subject objectives

To familiarize students with issues related to the construction and maitenence of mechatronic systems in modern vehicles.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W08	Student is up to date with new developments in technology in mechatronic systems in vehicles and working machines.	[SW1] Assessment of factual knowledge
K6_U05	Student explains principles of operation of mechatronics systems in vehicles and heavy machinery.	[SU3] Assessment of ability to use knowledge gained from the subject
K6_U06	Student is able to perform diagnostics of mechatronic systems in vehicles and heavy machinery.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
K6_W11	Student knows the structure of mechatronics systems in vehicles and heavy machinery.	[SW1] Assessment of factual knowledge

Subject contents

Centralized network administration in vehicles (CAN, LIN). Sensors and controlers used in vehicles and heavy machinery. Active and passive safety systems in vehicles (braking, traction control, skidding). Vehicle lighting systems (inteligent lighting systems ILS). Driving and riding comfort systems (parking aid, criuse control, information, navigation, ventilation, climat control, interior ilimination, vehicle theft protection). Mechatronics systems in heavy machinery.

Prerequisites and co-requisites

Knowledge of mechanics of machines and devices. Basic knowledge of machine building and mechanical engineering. Basics of electronics and elektrotechnics. Basics of informatics.

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Test</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Bosch Automotive Handbook 6th Edition, Bentley Publishers, USA, 2005
The Mechatronics Handbook By Robert H. Bishop, CRC Press, 2002.</td></tr>
<tr><td>Supplementary literature</td><td>Mechatronics and the Design of Intelligent Machines and Systems By David A. Bradley, CRC Press, 2000.</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:
Mechatronika w pojazdach i maszynach roboczych - W, MTR, I st. stacj. sem.06 (PG_00005428) - 2022/2023 - Moodle ID: 27346
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27346</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2"></td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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