



Subject card

Subject name and code	Mechatronics, PG_00060466						
Field of study	Mechanical and Naval Engineering						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
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_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.		[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		
	[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_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		
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		
	Test		55.0%		70.0%		
	Performing laboratory tasks		75.0%		30.0%		

Recommended reading	Basic literature	<p>Bosch Automotive Handbook 6th Edition, Bentley Publishers, USA, 2005</p> <p>The Mechatronics Handbook By Robert H. Bishop, CRC Press, 2002.</p> <p>Current articles on solutions for mechatronic systems in vehicles.</p>
	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	