



## Subject card

Subject name and code	Mechatronics, PG_00055398						
Field of study	Mechanical 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	Full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			3.0		
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	30.0	0.0	30.0	0.0	0.0	60
	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	60		3.0		12.0	75
Subject objectives	Providing students with essential knowledge about mechatronics as well as design methods, modelling and exploitation of mechatronic systems						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W10] possesses knowledge on electronics and electrical engineering	Student applies theoretically supported, general knowledge in the field of electrotechnics and electronics in the design of mechatronic systems			[SW1] Assessment of factual knowledge		
	[K6_W06] possesses knowledge on automatics and robotics of mechanical systems	Student analyses control systems for mechatronic devices			[SW3] Assessment of knowledge contained in written work and projects		
	[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	Student models and programs measurement and control systems for mechatronic devices			[SU1] Assessment of task fulfilment		

Subject contents	<p>Basic definitions in the field of mechatronics</p> <p>Essential problems of mechatronics design</p> <p>Interdisciplinary approach to mechatronics design.</p> <p>Methods and examples of mechatronic design</p> <p>Integration of mechanics, electrotechnics, electronics, hydraulics, actuators, controls and software in mechatronic systems</p> <p>Signal processing and analysis .</p> <p>Modelling of mechatronic systems elements.</p> <p>Design and exploitation of mechatronics systems</p> <p>Functions and functionality of modules and elements of mechatronic systems</p> <p>Laboratory:</p> <ul style="list-style-type: none"> <li>- modelling of mechatronic systems elements</li> <li>- mechatronic actuators</li> <li>- programming of the didactic mechatronic system</li> </ul>											
Prerequisites and co-requisites												
Assessment methods and criteria	<table border="1" data-bbox="448 1285 1487 1413"> <thead> <tr> <th data-bbox="448 1285 794 1317">Subject passing criteria</th> <th data-bbox="794 1285 1141 1317">Passing threshold</th> <th data-bbox="1141 1285 1487 1317">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="448 1317 794 1377">Finishing of tasks given during laboratory classes</td> <td data-bbox="794 1317 1141 1377">55.0%</td> <td data-bbox="1141 1317 1487 1377">40.0%</td> </tr> <tr> <td data-bbox="448 1377 794 1413">Written test</td> <td data-bbox="794 1377 1141 1413">55.0%</td> <td data-bbox="1141 1377 1487 1413">60.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Finishing of tasks given during laboratory classes	55.0%	40.0%	Written test	55.0%	60.0%
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Example issues/ example questions/ tasks being completed	Exemplary questions / tasks will be presented to the student at least 4 weeks ahead of the final tests.											
Work placement	Not applicable											