



Subject card

Subject name and code	, PG_00056133						
Field of study	Mechatronics						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2025/2026		
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	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Michał Mazur				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	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	Introduction to navigation and location systems used in mobile robotics.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W11] has knowledge about the life cycle of mechatronic systems and objects	He has basic knowledge about the life cycle of mobile robots and their navigation systems.			[SW1] Assessment of factual knowledge		
	[K6_W10] has knowledge about development trends in the field of engineering and technology sciences and scientific disciplines: Mechanical Engineering, Automation, Electronics, Electrical Engineering and Space Technologies, adequate for Mechatronics course	has a basic knowledge of development trends in the field of navigation systems and the location of mobile robots			[SW1] Assessment of factual knowledge		
	[K6_U05] is able to use properly chosen tools to compare design solutions of elements and mechatronics systems according to given application and economic criteria (e.g. power demand, speed, costs)	can use properly selected tools to compare the solutions of navigation systems of mobile robots			[SU4] Assessment of ability to use methods and tools		
	[K6_U06] is able to identify and formulate specification of simple, practical engineering tasks, distinctive for mechatronics	is able to identify and formulate the specification of simple engineering tasks during the design and selection of components for navigation systems of mobile robots			[SU2] Assessment of ability to analyse information		
	[K6_W08] knows and understands design and production processes of elements and simple mechatronic devices	knows and understands the processes of designing and building navigation systems for mobile robots			[SW1] Assessment of factual knowledge		

Subject contents	<p>1 Introduction - to discuss ways of moving robots with regard to kinematics wheeled robots 2 Perception of a mobile robot 3 Methods of locating mobile robots 4 Collision Avoidance Methods 5 Planning the trajectory of mobile robots</p>											
Prerequisites and co-requisites	<p>Knowledge and experience on Fundamentals of automatic control. Knowledge and experience in Informatics (sem. II, IV). Knowledge on Mechatronic systems components.</p>											
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="454 434 794 461">Subject passing criteria</th> <th data-bbox="798 434 1137 461">Passing threshold</th> <th data-bbox="1141 434 1482 461">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="454 465 794 492">Midterm colloquium</td> <td data-bbox="798 465 1137 492">60.0%</td> <td data-bbox="1141 465 1482 492">60.0%</td> </tr> <tr> <td data-bbox="454 497 794 524">Team projects</td> <td data-bbox="798 497 1137 524">100.0%</td> <td data-bbox="1141 497 1482 524">40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Midterm colloquium	60.0%	60.0%	Team projects	100.0%	40.0%
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Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											