



## Subject card

Subject name and code	, PG_00058653						
Field of study	Transport and Logistics						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Zakład Projektowania Okrętów i Robotyki Podwodnej -> Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Jakub Montewka				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	30.0	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		0.0		0.0	60
Subject objectives	The aim of the course is to familiarize students with the issues of autonomy in transport systems, including the maritime transport system and intralogistics. The development of autonomy over the last century and the milestones that marked the individual stages of this development will be presented. Currently used control, navigation and propulsion systems techniques will be presented.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W02] The student has an extensive knowledge of modeling transport processes, including the knowledge necessary to describe and evaluate the functioning of selected elements of the transport system	The student is able to select tools and perform a simple task related to mathematical modeling of a selected aspect of the transport system.	[SW3] Assessment of knowledge contained in written work and projects
	[K7_U06] The student is able to notice their non-technical aspects, including environmental, economic and legal aspects when formulating and solving project tasks. Applies the principles of occupational health and safety	The student is able to determine the boundary conditions of the analyzed problem, being aware of the existence of a wide range of influence of systems in many aspects.	[SU3] Assessment of ability to use knowledge gained from the subject
	[K7_K02] The student is aware of the importance of non-technical aspects and the effects of engineering activities, including its impact on the natural environment and the related responsibility for decisions made	The student is aware of the multi-aspect nature of transport systems.	[SK2] Assessment of progress of work
	[K7_U04] The student is able to use the known methods and mathematical models, as well as computer simulations to analyze, design and evaluate the functioning of transport systems or their components	The student is able to select tools and perform a simple task related to mathematical modeling of a selected aspect of the transport system.	[SU4] Assessment of ability to use methods and tools
[K7_U01] The student can obtain information from literature, databases and other, properly selected sources, also in English; is able to integrate the obtained information, interpret it, as well as draw conclusions and formulate and justify opinions	The student is able to properly conduct literature research on the issue he is analyzing and draw suitable conclusions.	[SU2] Assessment of ability to analyse information	
Subject contents	Definitions, terms, levels of autonomy The history of autonomy Automated Guided Vehicles Autonomous ships Modern areas of application Technological standards Interdisciplinary design of autonomous systems (concept of design for X) The future of autonomous transportation systems		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written assessment	51.0%	50.0%
	Positive assessment from the project	51.0%	50.0%
Recommended reading	Basic literature	Günter Ullrich , Thomas Albrecht. Automated Guided Vehicle Systems. A Guide - With Practical Applications - About The Technology - For Planning. Springer, 2023	
	Supplementary literature	-	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		