



Subject card

Subject name and code	Theory Control of Transprt Systems, PG_00045238						
Field of study	Transport and Logistics, Transport and Logistics						
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	5		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Control and Power Engineering -> Faculty of Ocean Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Konrad Marszałkowski				
	Teachers		dr inż. Konrad Marszałkowski				
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	30.0	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		5.0		35.0	100
Subject objectives	ability of solving transport systems control issues						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W03] has a basic knowledge on hydromechanics, thermodynamics, machine construction, ecology, materials science and electronics necessary to understand the construction and operation principles of means of marine transport		student is conversant with fundamentals of hydromechanics, thermodynamics, machinery design, materials technology, and electric engineering enabling him to understand principles of construction and operation of maritime transport		[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
	[K6_W08] has knowledge regarding the principles of sustainable development		student describes features of sustainable development, is able to relate them to design and operation of transport systems		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation		
	[K6_W04] has a basic knowledge in IT, electronics, automation and control, computer graphics useful to understand the possibilities of their application in transport		student is able to apply fundamental knowledge of informatics, electronics, control, computerized graphics, useful in transport		[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
Subject contents	notion of large system and complex system, principle of control and management in transport systems, transport system modelling, transport system control design steps, decomposition method, formal and heuristic methods of large system structure determination, optimization of transport system control, optimization criteria, application of management science in transport system control, influence of investment on transport system control optimization, intelligent transport systems, transport system as multilevel large system, large system sensibility to decomposed control, intermodal transport, role of hydrogen in maritime transport						
Prerequisites and co-requisites	knowledge of transport systems fundamentals, knowledge of automatic control and manegement fundamentals						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	examination		50.0%		60.0%		
	test		50.0%		40.0%		

Recommended reading	Basic literature	[1] Leon S. Lasdon: Optimization Theory for Large Systems. General Publishing Company Ltd. Toronto, 2002, [2] Moshe E. Ben-Akiva, Hilde Meersman, E. van de Voorde: Recent Developments in Transport Modelling - Lessons for the Freight Sector. Elsevier Science Ltd, 2008
	Supplementary literature	Zb. Pietrzykowski: Maritime Intelligent Transport Systems. Springer, Berlin, Heidelberg, 2010
	eResources addresses	Adresy na platformie eNauczanie: Teoria sterowania systemów transportowych, W,STW, sem. 05, zimowy 22/23 - Moodle ID: 25865 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25865
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	