



Subject card

Subject name and code	, PG_00066215						
Field of study	Transport						
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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department Of Transportation Engineering -> Faculty Of Civil And Environmental Engineering -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Daniel Kaszubowski				
	Teachers		dr hab. Daniel Kaszubowski mgr inż. Konrad Biszko				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	0.0	45
	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	45		0.0		0.0	45
Subject objectives	The aim of the subject is to present practical conditions for the functioning of modern logistics systems using modern technologies to increase their efficiency, reliability and flexibility. Issues related to the use of the Internet of Things in logistics and the possibilities resulting from the automation and robotization of selected processes have been taken into account. The most important technological trends that will shape the work environment in the future in areas related to intelligent logistics systems have also been highlighted. Laboratory classes include the use of FlexSim software in applications related to the modeling of logistics systems, including autonomous warehouse vehicles and advanced logic for controlling model elements.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U01] creates innovative solutions to complex and unstructured problems, taking into account the variability of the environment by synthesizing information from many sources, using analytical, simulation and experimental methods		Ability to analyze complex logistics processes for the purpose of their computer modeling		[SU4] Assessment of ability to use methods and tools		
	[K7_K02] makes competent and ethical decisions, caring for the public interest and maintaining economic, social and environmental values		Ability to select appropriate KPIs to evaluate logistics processes		[SK5] Assessment of ability to solve problems that arise in practice		
	[K7_W02] explains the importance and interdependence of key components describing transport systems and processes and their environment, using in-depth knowledge in accordance with the main trends in the development of scientific disciplines related to the field of study		Ability to identify factors that determine the effectiveness of transport and logistics processes at the operational level		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	1. Introduction of the concept of smart solutions. 2. Factors supporting smart solutions and their examples. 3. Logistics 4.0 and smart supply chain. 4. The meaning of the concept and functionality of the Internet of Things (IoT). 5. Examples of IoT use. 6. Premises and conditions for work automation 7. The concept of smart industry and smart factory. 8. Smart solutions in transport, logistics and warehousing. 9. Modeling logistics processes using the FlexSim application		
Prerequisites and co-requisites	Modeling of logistics processes (2 semester)		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	laboratories	60.0%	60.0%
	test	60.0%	40.0%
Recommended reading	Basic literature	Demińska I., Frankowska M., Malinowska M., Tundys B.: Start Logistics. Inteligentne rozwiązania logistyczne w łańcuchach dostaw, przemyśle, obszarach miejskich oraz zarządzaniu transportem i gospodarką magazynową. Wydawnictwo edu-Libri, Kraków 2018r.	
	Supplementary literature	Actual industry publications	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Modeling the use of AGVs in logistics processes Basics of using network diagrams in modeling		
Work placement	Not applicable		

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