International University of Logistics and Transport in Wrocław

Leading					
Item	Warehousing and internal transport infrastructure				
Module	W	ECTS points	5	Reference number of the study program	L/2024/SPS/S/P - L/2024/SPS/N/P

Direction	Specialty	Academic year
LOGISTICS	Trade and distribution logistics / Transport safety	
Term	5	Year of study: III

Form of studies	Stationary				Part-time			
Form of classes	Lecture	Exercises	Laboratories	Design	Lecture	Exercises	Laboratories	Design
Number of hours	16	14	12		12	12	9	
TOGETHER	42				33			

Objective of the course	The aim of this course is to provide knowledge about warehouse infrastructure and internal transport systems, as well as the principles of their operation in logistics and manufacturing enterprises. Students learn the principles of infrastructure selection based on the characteristics of logistics processes and economic and technical conditions. The course also develops skills in utilizing modern, automated solutions consistent with the Industry 5.0 concept.

Minimum knowledge required from the student before starting classes

The student should have basic knowledge of logistics, in particular regarding warehousing processes, the flow of goods and the functioning of production and logistics enterprises.

Recommended literature to study before starting classes

Dastbaz M. 2015: Green Information Technology: A Sustainable Approach, Elsevier LTD, Oxford

SUBJECT-SPECIFIC LEARNING OUTCOMES (SLE)			KEU	EVALUATION METHODS	
	CODE	FORM	CODE	CODE	FORM
KNOWLEDGE	W01	The student knows the functions and importance of warehouse infrastructure and internal transport in ensuring the continuity of material flow and the efficiency of logistics processes in manufacturing and distribution enterprises.	K1_W04_L_P	MO6	Written exam in the form of a closed, single-choice test
	W02	The student knows the structure, technical parameters and principles of operation and exploitation of warehouse equipment and internal transport means, including storage	K1_W06_L_P	MO4	Written exam in the form of open tasks
	W03	The student understands the impact of the selection of warehouse and transport infrastructure on economic efficiency, the quality of logistics processes and the level of	K1_W11_L_P	MO2	Written exam in the form of open tasks
SKILLS	U01	The student is able to select warehouse infrastructure and means of internal transport for specific operating conditions of the enterprise, taking into account technical, economic and organizational aspects.	K1_U05_L_P	MO13	Passing papers, semester papers, etc.
	U02	The student is able to analyze warehouse processes and evaluate the use of infrastructure, identifying opportunities for the use of modern technologies and automation.	K1_U11_L_P	MO17	Passing the practical task
	U03	The student is able to develop a concept for the organization of warehouse infrastructure and internal transport, including automated solutions, adapted to the requirements of logistics processes.	K1_U12_L_P	MO13	Passing papers, semester papers, etc.
SOCIAL COMPETENCES	K01	The student is ready to independently develop knowledge in the field of warehouse infrastructure and internal transport and make decisions related to its selection.	K1_K01_L_P	MO16	Assessment of students' work and cooperation during classes (observation to

Subject content		
	Lecture	The essence of warehouse infrastructure and its importance in logistics systems. Types of warehouses and their technical equipment. Storage infrastructure, including warehouse racking and its application. Internal transport means and their role in logistics processes. Load units and their impact on infrastructure selection. Automation of warehouse processes and the importance of modern technologies in warehousing. Criteria for selecting warehouse and transport infrastructure, taking into account process efficiency and quality.
	Exercises	Analyzing enterprise warehouse infrastructure and assessing its impact on the efficiency of logistics processes. Selecting storage and internal transport infrastructure for specific warehouse operating conditions. Solving problems related to the organization of goods flow. Assessing the efficiency of warehouse infrastructure utilization and analyzing opportunities for its improvement, taking into account economic and organizational aspects.
	Laboratories	Analysis of warehouse processes in an automated environment and assessment of the impact of the implemented infrastructure on operational efficiency. Assessment of the use of internal transport systems, including conveyors, stacker cranes, and mobile robots, in the implementation of storage and goods flow processes. Analysis of warehouse infrastructure performance parameters and identification of process constraints. Selection and configuration of automated warehouse
	Projects	

	CODE	FORM
Teaching methods	**MD4**	Conversational lecture using multimedia techniques
	MD10	Case method
	MD16	Exercises – solving tasks and problems
Compulsory literature	**1**	Dawson M. 2022: EU Law and Governance, Wydawnictwo Cambridge University Pr., Cambridge
	2	Christopher M. 2023: Logistics and Supply Chain Management, Wydawnictwo Financial Times Prent. Londyn
	3	Zieger S. 2025: Logistics and Power: Supply Chains from Slavery to Space, Wydawnictwo University of California Press, Kalifornia
Additional literature	**1**	Byrd L. Byrd G. Pearce. C. 2021: Cambridge Lower Secondary Mathematics Learners Book, Wydawnictwo Cambridge University Press, Londyn
	2	Helmold M, Yilmaz A, Dathe T, Flouris T. 2022: Supply Chain Risk Management: Cases and Industry Insights, Wydawnictwo Springe,m Warszawa

Conditions for passing the course
The final exam grade constitutes 30% of the final grade. Assessment of labs – based on attendance, active participation, calculations, and problem-solving – 40%. Assessment of labs – based on attendance, active participation, and the report – 30%.