

International University of Logistics and Transport in Wrocław

Leading								
Item	Commodity science and warehouse management							
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			updated syllabus			
Term		V	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 the course is to provide students with the knowledge and skills necessary for effective goods and warehouse management, including goods classification, storage, picking and the use of modern technologies and automated infrastructure in the context of Industry 5.0.							
Minimum knowledge required from the student before starting classes								
Basic knowledge of logistics and business organization, including familiarity with basic concepts related to transportation and warehousing. An understanding of basic economics and familiarity with IT tools supporting logistics processes are also recommended.								
Recommended literature to study before starting classes								
N/A								
SUBJECT-SPECIFIC LEARNING OUTCOMES (SLE)					KEU	EVALUATION METHODS		
	CODE	FORM			CODE	CODE	FORM	
KNOWLEDGE	W01	Knows the properties and classifications of goods and packaging as well as tools for managing inventory in warehouses, including automated systems.			K1_W04_L_P	MO2	Written exam in the form of a closed, single-choice test	
	W02	Understands the mechanisms of warehouse operation in the context of supply, production and distribution logistics and the role of modern technologies and Industry 5.0.			K1_W06_L_P	MO4	Written exam in the form of open tasks	
	W03	Possesses knowledge of warehouse, transport and IT infrastructure and the possibilities of its integration with logistics processes.			K1_W11_L_P	MO4	Written exam in the form of open tasks	
SKILLS	U01	Can analyze warehouse processes, select appropriate storage methods and plan warehouse space taking into account automation and Industry 5.0.			K1_U05_L_P	MO5	Written exam in the form of practical tasks (computational or problem-solving tasks)	
	U02	Able to design and optimize goods receipt, picking and issue processes and use warehouse performance indicators.			K1_U11_L_P	MO17	Passing the practical task	
	U03	Is able to identify problems in warehouse operation and packaging design, taking into account environmental, economic and legal aspects, and propose effective logistics solutions.			K1_U12_L_P	MO17	Passing the practical task	
SOCIAL COMPETENCES	K01	Is willing to independently acquire knowledge and share experience and information within the team, including when implementing new warehouse technologies.			K1_K04_L_P	MO16	Assessment of students' work and cooperation during classes (observation to check acquired social competences)	
	Lecture	Introduction to commodity science and warehousing. Classification of goods and their physical, chemical, and economic properties. Quality standards and norms in commodity trading. Warehouse logistics – basic concepts and processes.						

Subject content	Lecture	Warehouse infrastructure: manual, automated systems, Industry 4.0 and 5.0. Warehouse performance indicators (KPIs, OEE, quality and cost indicators). The role of digitization and automatic identification systems.
	Exercises	Analysis of product properties and selection of storage methods. Analysis of material flow and optimization of warehouse processes. Selection of individual and collective packaging depending on the type of product. Selection of KPIs in warehouse practice. Analysis of the benefits and limitations of warehouse technologies and infrastructure.
	Laboratories	Data digitization using GS1 standards. Selection and implementation plan of technology and infrastructure appropriate to the warehouse type and processes. Optimization of simulated warehouse processes. Control of goods flow within the warehouse. Calculation and analysis of performance indicators.
	Projects	

Teaching methods	CODE	FORM
	MD4	Conversational lecture using multimedia techniques
	MD16	Laboratory exercises – solving tasks and problems
	MD19	Demonstration-practice method

Compulsory literature	1	Kumar V., Adil GK., 2025: Sustainable warehouse management: a literature review and future research agenda, Management Research Review, Vol. 48 No. 3, Emerald Group Publishing, London.
	2	Richards G., 2011: Warehouse Management, Kogan Page, London.

Additional literature	1	Szakiel J., Adamczyk W., Arcese G., 2014: Commodity Science in Research and Practice – Achievements and challenges of commodity science in the age of globalization, Polish Society of
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Conditions for passing the course	
The final exam grade constitutes 30% of the final grade. Assessment of labs - based on attendance, active participation, calculation tasks, and a colloquium - 40%. Assessment of labs - based on attendance, timely submission of problem-solving tasks, and a report - 30%.	