International University of Logistics and Transport in Wrocław

Leading					
Item	**Managing the turnover of pallets and reusable packaging**				
Module	**W**	**ECTS points**	**4**	**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**	updated syllabus

Term	VI	**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**	**16**		**16**	**12**	**15**		**12**
TOGETHER	**48**				**39**			

Objective of the course	The aim of this course is to provide knowledge and skills in organizing, monitoring, and optimizing the circulation of pallets and reusable packaging in supply chains. It also prepares students to design returnable packaging systems that align with the principles of circular economy and sustainable development.

Minimum knowledge required from the student before starting classes

The student should have basic knowledge of logistics and the functioning of supply chains, in particular in the field of warehousing, transport and loading unit processes, as well as the basic economic aspects of logistics activities.

Recommended literature to study before starting classes

Burchard B. 2008: The Student Leadership Guide, Morgan James Publishing, Nowy Jork

SUBJECT-SPECIFIC LEARNING OUTCOMES (SLE)			**KEU**	**EVALUATION METHODS**	
	CODE	**FORM**	**CODE**	**CODE**	**FORM**
KNOWLEDGE	**W01**	The student knows the principles of operation of pallet and reusable packaging trading systems and the principles of the circular economy and their impact on the efficiency of logistics processes and the environment.	**K1_W04_L_P**	**MO6**	Written exam in the form of a closed, single-choice test
	W02	The student understands the role of flows in the management of reusable packaging in supply chains, including the relationships between participants in the logistics network	**K1_W06_L_P**	**MO4**	Written exam in the form of open tasks
	W03	The student has knowledge of the technical, economic and environmental conditions of the use of packaging, including reusable packaging and systems for its recording and	**K1_W09_L_P**	**MO2**	Written exam in the form of open tasks
SKILLS	**U01**	The student is able to analyze the functioning of pallet and packaging circulation systems, taking into account economic, environmental and organizational aspects, and identify factors influencing their effectiveness.	**K1_U05_L_P**	**MO13**	Passing papers, semester papers, etc.
	U02	The student is able to conduct a cost analysis of using reusable packaging and compare alternative logistics solutions.	**K1_U06_L_P**	**MO17**	Passing the practical task
	U03	The student is able to select transport packaging and its circulation system in the supply chain, taking into account technical, economic, technological and environmental requirements and possibilities.	**K1_U12_L_P**	**MO13**	Passing papers, semester papers, etc.
SOCIAL COMPETENCES	**K01**	The student is ready to set priorities and carry out tasks related to the design and implementation of packaging management systems in logistics activities.	**K1_K01_L_P**	**MO16**	Assessment of students' work and cooperation during classes

Subject content	Lecture	Packaging functions and classification. The importance of pallets and reusable packaging in supply chains. Types of pallets and reusable packaging, standards and norms used in logistics. Pallet and packaging circulation in logistics: return, rental, and sharing systems. The environmental impact of packaging circulation and the principles of sustainable development. Environmental management principles and quality standards for pallets and packaging. Technologies supporting pallet circulation management: digitization, RFID, automation, and monitoring. GS1 standards for packaging tracking. Cost and efficiency analysis of pallet systems and reusable packaging. Active and intelligent packaging, modern cargo monitoring systems.
	Exercises	Analyzing pallet and packaging turnover cases in enterprises. Assessing the impact of various pallet circulation systems on the environment and operating costs. Developing solutions to optimize pallet and packaging circulation within the logistics network. Utilizing digital tools to monitor pallet and packaging turnover. Recording data in the GS1 standard. Pallet balances are settled in a pooling system.
	Laboratories	
		Design assumptions for reusable packaging at the collective and transport levels, taking into account packaging functions.

	Projects	Material selection based on quality, cost, and environmental requirements. Design of a packaging circulation system within the supply chain (distribution, returns, records, control). Development of a pooling or closed-loop system concept. Utilization of identification and monitoring technologies (barcodes, RFID, GS1 standards). Analysis of the solution's economic efficiency.

	CODE	FORM
Teaching methods	**MD4**	Conversational lecture using multimedia techniques
	MD8	Project method
	MD16	Exercises – solving tasks and problems

Compulsory literature	**1**	Helmold M, Yilmaz A, Dathe T, Flouris T. 2022: Supply Chain Risk Management: Cases and Industry Insights, Wydawnictwo Springe,m Warszawa
	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**	Stranks J. 2016: Health and Safety at Work, Wydawnictwo Kogan Page Ltd, Londyn
	2	Zieger S. 2025: Logistics and Power: Supply Chains from Slavery to Space, Wydawnictwo University of California Press, Kalifornia

Conditions for passing the course
The final exam grade constitutes 30% of the final grade. Assessment of the exercises – based on attendance, active participation, and calculation tasks – 40%. Assessment of the project – based on attendance, active participation, and the final project – 30%.