GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Logistics process management, PG_00064728						
Field of study	Management and Production Engineering						
Date of commencement of studies	February 2026		Academic year of realisation of subject	2026/2027			
Education level	second-cycle studies		Subject group	Specialty subject group Subject group related to scientific research in the field of study			
Mode of study	Full-time studies		Mode of delivery	at the university			
Year of study	1		Language of instruction	Polish			
Semester of study	2		ECTS credits	3.0			
Learning profile	general academic profile		Assessment form	exam			
Conducting unit	Division of Manufacturing and Production Engineering -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology -> Wydziały Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Aleksandra Wiśniewska					
	Teachers						

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	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	30	9.0	36.0	75

Subject objectives	The student learns the goals and principles of the supply chain operation in terms of logistics. The student learns the methods and tools used in supply chain management. By expanding knowledge and performing simple exercises related to the analyzed areas of issues related to the scope of the supply chain, the student can independently design a supply chain management system, starting from the development of a supply system and an optimized technological line, through the evaluation and selection of suppliers, and ending with efficient distribution.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_K12] is ready for fullfiling social commitement and initation of actions for public interest including entrepreneurial thinking and acting	The student applies entrepreneurship principles to supply chain management.	[SK5] Assessment of ability to solve problems that arise in practice
[K7_U01] uses known analytical, simulation and experimental methods as well as mathematical models to analyze and evaluate stationary and non-stationary technological and production systems/processes with continuous and discrete operation	The student uses analytical and simulation methods to evaluate and optimize logistics processes.	[SU4] Assessment of ability to use methods and tools
[K7_W01] explains and describes, on the basis of general knowledge in the field of scientific disciplines creating the theoretical basis for Management and Production Engineering, the structure and principles of operation of production systems and processes and their elements, as well as methods and means of their integration and control	The student is able to explain and describe the principles of operation of logistics systems and their integration.	[SW3] Assessment of knowledge contained in written work and projects
[K7_W11] interprets social, economic, legal (including industrial and intellectual property laws), and other non-technical aspects of engineering activities, and includes them into engineering practice	The student takes into account legal, economic and social aspects in logistics management.	[SW2] Assessment of knowledge contained in presentation

Subject contents

Lecture content (15 hours)

1. **Logistics concept and development**
   - **Scope:** History of logistics, importance of logistics in modern enterprises, evolution of logistics to supply chain management.
2. **Supply chain management (SCM)**
   - **Scope:** SCM models, role of logistics in the supply chain, analysis of material and information flow
3. **Logistics systems and analysis**
   - **Scope:** Basic concepts, structure of logistics systems, methods of analysis and assessment of systems..
4. **Logistics chains**
   - **Scope**: Role of logistics channels in the flow of products, management of distribution channels
5. **Supply, production and distribution logistics**
   - **Scope:** Logistics in production processes, inventory management, supply optimization.
6. **Logistics and marketing**
   - **Scope:** Relationships between logistics and marketing, role of logistics in customer service.
7. **Logistics costs of enterprises**
   - **Scope:** Categories of logistics costs, methods of reducing costs, analysis of transport and storage costs.
8. **Environmental protection logistics and sustainable logistics**
   - **Scope:** Reverse logistics, waste management, emission reduction strategies in logistics.
9. **Logistics services and outsourcing**
   - **Scope:** The role of outsourcing, criteria for selecting logistics service providers.

Exercises (15 hours)

1. **Logistics decision-making problems in customer service**
   - **Scope:** Analysis of customer requirements, service level management..
2. **Transport management**
   - **Scope:** Planning of transport resources, analysis of transport costs, route optimization.
3. **Inventory and storage management**
   - **Scope:** Inventory management methods (ABC/XYZ, EOQ), storage principles.
4. **Location decisions of logistics facilities**
   - **Scope:** Criteria for selecting the location of warehouses and logistics centers.
5. **Multimodal transport logistics**
   - **Scope:** Road, rail, air, sea, multimodal transport logistics.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	60.0%	50.0%
Exercises	60.0%	50.0%

Recommended reading	Basic literature	Ballou R.: Business Logistics Supply Chain Management. Prentice Hall, 2004. Pienaar W.: Business Logistics Management. Oxford University Press, 2009. Rutkowski K. (ed.): Best Practices in Logistics and Supply Chain Management the Case of. SGH, 2009. Witkowski Jarosław, Zarządzanie łańcuchem dostaw: Koncepcje, Procedury, Doświadczenia., PWE 2003 Ciesielski Marek, Instrumenty zarządzania łańcuchami dostaw., PWE 2009 Christopher Martin, Logistyka i zarządzanie łańcuchem dostaw., Polskie Centrum Doradztwa Logistycznego 1992 Bozarth Cecil B., Handfield Robert B., Wprowadzenie do zarządzania operacjami i łańcuchem dostaw., Helion 2007 Gołembska Elżbieta, Kompendium wiedzy o logistyce., PWN 1999 Sarjusz-Wolski Zdzisław, Sterowanie zapasami w przedsiębiorstwie., PWE 2000 Kenneth Lysons, Zakupy zaopatrzeniowe., PWE 2004 Yann Bouchery, Jan Fransoo, Charles J. Corbett, Tarkan Tan, Sustainable Supply Chains: A Research-Based Textbook on Operations and Strategy., Springer 2016
	Supplementary literature	Supply Chain Management Review , www.scmr.com Logistics Management, www.logisticsmgmt.com Supply Management, www.supplymanagement.com Bartłomiej Gawin, Systemy informatyczne w zarządzaniu procesami Workflow. PWN 2020 Wojewódzka-Król Krystyna , Rolbiecki Ryszard, Infrastruktura transportu. Europa, Polska teoria i praktyka, PWN 2018 Dani Samir, Strategic Supply Chain Management: Creating Competitive Advantage and Value Through Effective Leadership., Amazon Books 2019
	eResources addresses	

Example issues/ example questions/ tasks being completed	**Theoretical questions** 1. **Fundamentals of logistics and supply chain management** • How is the concept of logistics defined and what are its main goals? • What are the differences between supply, production and distribution logistics? 2. **Systems and analysis of logistics systems** • What are the basic elements of a logistics system? • What methods can be used to analyze logistics systems? 3. Logistics chains • What are logistics channels and what functions do they perform in the product flow process? • How does managing distribution channels affect supply chain efficiency? 4. **Logistics costs** • List and describe the categories of logistics costs that occur in enterprises. • What methods can be used to reduce logistics costs? 5. **Environmental protection logistics** • What is reverse logistics and what role does it play in environmental protection logistics? • What actions can enterprises take to reduce CO emissions in logistics? 6. **Outsourcing of logistics services** • What is outsourcing of logistics services and what are its main advantages? • What criteria should be taken into account when choosing a logistics service provider? **Practical issues** 1. **Decision-making problems in customer service logistics** • What decisions must a logistics manager make in the context of customer service? Provide examples of decision-making problems. • Propose a strategy for managing the level of customer service in a logistics company. 2. **Transport management** • How can transport resources be optimized to minimize costs? • Describe the route planning process for urban transport, taking into account factors such as traffic volume and delivery time. 3. **Inventory management** • What are the basic inventory management methods (ABC/XYZ, EOQ) and when is it worth using them? • Design a simplified inventory management system for a distribution warehouse. 4. **Location decisions for logistics facilities** • What criteria should be considered when selecting the location of a new logistics center? • Provide examples of methods supporting location decisions. 5. **Multimodal transport optimization** • What factors influence the selection of the appropriate mode of transport in multimodal logistics? • Design a simple combined transport scenario for an international shipment. **Questions about management methods and tools** 1. **Lean Management (LM)** lean management • What benefits can Lean Management bring in the management of logistics processes? • Please provide examples of the use of Lean Management in production logistics. 2. **Quick Response (QR)** fast reaction • In what situations is the Quick Response strategy used in logistics and what benefits can it bring? • Which industries most often use Quick Response and why? 3. **Agile Management (AM)** flexible management • What are the basic differences between Lean Management and Agile Management in logistics? • How can Agile Management increase the flexibility of logistics processes? 4. **Total Quality Management (TQM)** quality management • How can TQM principles affect the efficiency of the supply chain? • Please provide examples of the practical application of TQM in logistics. 5. **Business Process Reengineering (BPR)** process redesign • What are the main steps in the BPR process and how can they help optimize logistics? • Please suggest examples of logistics processes that can be redesigned using BPR. Six Sigma and SCOR. 6. **Six Sigma i SCOR** • Na czym polega koncepcja Six Sigma i jak można ją zastosować w optymalizacji procesów logistycznych? • Czym jest model SCOR i jakie są jego główne elementy w kontekście zarządzania łańcuchem dostaw? **Efekty uczenia się a zaliczenie** • **Efekt 1**: Wykorzystanie metod analitycznych i symulacyjnych zagadnienia dotyczące analizy systemów logistycznych, zarządzania zapasami, projektowania systemu logistycznego. • **Efekt 2**: Myślenie i działanie przedsiębiorcze pytania o koszty logistyczne, optymalizację procesów, wdrażanie Lean Management i Agile. • **Efekt 3**: Interpretacja uwarunkowań społecznych, ekonomicznych i prawnych pytania o outsourcing, ochronę środowiska, logistyka a marketing. • **Efekt 4**: Opis i zasady działania systemów logistycznych pytania o budowę i analizę systemów logistycznych, SCOR, BPR.
Work placement	Not applicable

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