



## Syllabus Course Program



# International Supply Chain Management

### Specialty

073 - Management

### Institute

Institute of Education and Science in Economics,  
Management and International Business

### Educational program

International Business

### Department

Management

### Level of education

Bachelor's level

### Course type

Obligatory educational component of professional  
training

### Semester

7

### Language of instruction

English

## Lecturers and course developers



### First name and surname

[natalia.shyriaieva@khpi.edu.ua](mailto:natalia.shyriaieva@khpi.edu.ua)

PhD, Associate Professor at the Department of Management, NTU "KhPI".

Work experience – over 15 years. Author of more than 130 scientific and educational-methodological publications. Participant in more than twenty international projects. Lecturer in the following disciplines:

"International Supply Chain Management"

"Global Value Chain Management"

"Corporate Foresight in International Business"

[More about the lecturer on the department's website](#)

## General information

### Summary

The course "International Supply Chain Management" is focused on mastering of modern methods of the supply chain management and development, as well as the use of modern technologies to ensure effectiveness of logistics processes in a supply chain. International supply chain management involves strategic planning, coordination, and optimization of processes across multiple countries and regions. It covers activities such as sourcing materials, production, logistics, distribution, and global sales. Key aspects include managing cultural differences, understanding trade regulations, optimizing transportation routes, mitigating geopolitical risks, and ensuring compliance with international standards and agreements.

### Course objectives and goals

Development of modern managerial thinking and knowledge in the field of supply chain management and logistics management. Additionally, the course emphasizes risk management strategies to effectively navigate geopolitical uncertainties. Sustainability in supply chain practices is also highlighted as a priority for global supply chains, gradually integrating into multinational corporate strategies

## Format of classes

Lectures, workshops, consultations. Individual assignment (calculation task). Final control – exam.

## Competencies

SC02. The ability to analyse the results of organization activity, to compare them with the factors of the external and internal environment.

SC03. The ability to identify prospects of organization development.

SC04. The ability to determine the functional areas of the organization and the relationships between them.

SC11. The ability to create and manage effective communication in the process of management.

SC16. The ability to coordinate export and import operations of an international company, to evaluate their effectiveness, taking into account the peculiarities of customs regulation.

## Learning outcomes

LO 05. To describe the content of the functional areas of the organization

LO 07. To show skills of organizational planning.

LO 12. To evaluate the legal, social, and economic implications of an organization's functioning.

LO 17. To conduct researches individually and/or in a group under the leadership of the leader.

LO18. Demonstrate the skills of coordinating export and import operations of an international firm, be able to evaluate their effectiveness, taking into account the peculiarities of customs regulation

## Student workload

The total volume of the course is 150 hours (5 ECTS credits): lectures - 32 hours, workshops - 32 hours, self-study - 86 hours.

## Course prerequisites

Previous courses that are necessary to complete before and for successful course completion: Economic Theory: Microeconomics, Economic Theory. Macroeconomics, Enterprise Economics, International Business, Management of export-import operations, Fundamentals of international marketing, Customs regulation, International investment activity

## Features of the course, teaching and learning methods, and technologies

Interactive lectures with presentations, discussions, workshops, project-based learning, teamwork, gamification, case studies

## Program of the course

### Topics of the lectures

**Topic 1. (Lecture 1) Concept and Essence of International Supply Chains (ISC) and Principles of Their Management.**

Introduction to ISC. Key definitions and concepts. Historical aspects of international supply chain development.

**Topic 2. (Lecture 2) Logistics Concept and Logistics Activities in ISC.**

Logistics concept. Logistics activities in ISC. Stakeholders in the supply chain.

**Topic 3. (Lectures 3-4) Material and Information Flows.**

Material flows in international supply chains. Information flow and the role of digital technologies.

**Topic 4. (Lectures 5-6) Functions of Supply Chains.**

Procurement, production, warehousing, transportation, customer service. Demand planning, supply planning, and supply chain management. Purchasing, manufacturing, warehousing, transportation, customer service, demand planning, supply planning and Supply Chain management.

**Topic 5. (Lectures 7-8) SCOR Model and Its Application in International Supply Chains.**

Components of the SCOR model. Implementation of the SCOR model. Components of the SCOR model. Implementation the SCOR model.

### Topic 6. (Lectures 9-10) Logistics Cost Management and Performance Evaluation in ISC.

Main types of logistics costs. Strategies for reducing costs in logistics and supply chain management. Concept of supply chain performance evaluation. Performance evaluation indicators. Supply chain efficiency curve.

### Topic 7. (Lectures 11-12) Information Technologies in ISC.

The role of IT in supply chain management. Functional roles of IT in supply chain management. Software for supply chain management. IT-based supply chain management types. Industry 4.0 and "smart" operations in global supply chains.

### Topic 8. (Lectures 13-14) International Supply Chain Strategies and Sustainable Development.

Key components and types of international supply chain strategies. Business and organizational strategies in global ISC. Sustainability as a key factor of competitiveness. Environmental, social, and economic aspects of sustainable development in international supply chains. Concept of "green" and circular supply chains.

### Topic 9. (Lectures 15-16) Risks, Shocks, and Resilience in International Supply Chains

Types of risks and their impact on global supply chains. Major shocks in critically important sectors. Concept of resilience in supply chains. "Ripple" effect and its consequences for international supply chains. Methods for risk minimization and ensuring supply chain viability.

## Topics of the workshops

### Topic 1. (Practical Sessions 1-2) Design/Modeling of International Logistics Network Structure.

Network design: key issues. Data for network design. Concepts of "Needs and Resource Planning," "Just-in-Time," "Lean Production," "Quick Response," "Green Logistics," and "Geologistics."

### Topic 2. (Practical Sessions 3-4) Study of the Humanitarian and Peacekeeping Aspects of Supply Chains

Case studies of countries in critical conditions. Logistics solutions in humanitarian crises (UN, Red Cross). Application of digital technologies in crisis logistics (drones, blockchain). Toyota's supply chain system. Toyota's approach to process improvement.

### Topic 3. (Practical Sessions 5-6) Logistics Processes in Enterprises: Toyota Case Study

Toyota supply chain system. Toyota's approach to process improvement.

### Topic 4. (Practical Sessions 7-8) Economic Order Quantity and Inventory Planning (MRP).

EOQ calculations. ABC-XYZ analysis. MRP system for manufacturers.

### Topic 5. (Practical Sessions 9-10) Management Processes in the SCOR Model.

SCOR model for strategic supply chain decisions.

### Topic 6. (Practical Sessions 11-12) Logistics Costs and Forecasting

Types of logistics costs. Approaches to logistics cost forecasting.

### Topic 7. (Practical Sessions 13-14) Application of Sustainable Development Goals in Supply Chain Management.

Ecology and sustainability in ISC and their efficiency. Risks and challenges of implementing sustainability strategies. "Green" logistics solutions (carbon footprint reduction, electric transport, circular economy).

### Topic 8. (Practical Sessions 15-16) Dual Transition (Digitalization and Sustainability) in ISC.

Case studies of successful companies integrating digital technologies and sustainability. Key challenges of dual transition.

## Topics of the laboratory classes

This course does not include laboratory classes.

## Self-study

Students have all supporting materials for self-studying. An individual assignment is a necessary element of the total grade. The IA topics are introduced to students in the beginning of the semester. The topics will reflect the current problems in International Supply Chain Management, and will be connected with digitalization and SDG. The results of the IA should be formed in a file and supported by the presentation.

## Course materials and recommended reading

- 1 Altenburg T., Lay J., Müller M. et al. Research Network Sustainable Global Supply Chains. Sustainable global supply chains in times of geopolitical crises: Annual report 2023. Berlin: Stiftung Wissenschaft und Politik (SWP), 2023. 144 p. DOI <https://doi.org/10.23661/r1.2024>.
- 2 Bányai T, Petrillo A, De Felice F. Industry 4.0 - Impact on Intelligent Logistics and Manufacturing. IntechOpen, 18 Mar. 2020. 144 p. ISBN978-1-78985-454-1.
- 3 Cigna, S., Gunnella, V., & Quaglietti, L. Global value chains: Measurement, trends, and drivers (Occasional Paper Series No. 289). European Central Bank, 2022. 57 p.
- 4 Ivanov D., Tsipoulanidis A., Schönberger J. Global Supply Chain and Operations Management: A Decision-Oriented Introduction to the Creation of Value: textbook. 3rd ed. Cham: Springer, 2021. 578 p.
- 5 Frazelle, Edward H. Supply chain strategy: Unleash the power of business integration to maximize financial, service, and operations performance. McGraw-Hill Education, 2018.
- 6 Mangan, John, and Chandra Lalwani. Global logistics and supply chain management. John Wiley & Sons, 2016.
- 7 Логістика : навч. посібник / О. Б. Білоцерківський [та ін.] ; Нац. техн. ун-т "Харків. політехн. ін-т". – Харків : НТУ "ХПІ", 2010. – 152 с. <http://repository.kpi.kharkov.ua/handle/KhPI-Press/34879>
- 8 Методичні вказівки до практичних занять з курсу "Міжнародна логістика" : для студентів спец. 073 "Менеджмент", 076 "Підприємництво, торгівля та біржова діяльність" [Електронний ресурс] / уклад.: Н. В. Ширяєва, А. Б. Макаренко, О. Б. Білоцерківський ; Нац. техн. ун-т "Харків. політехн. ін-т". – Електрон. текст. дані. – Харків, 2020. – 100 с. – URI: <http://repository.kpi.kharkov.ua/handle/KhPI-Press/47542>
- 9 Agolla J. E. Smart Manufacturing: Quality Control Perspectives. In Quality Control—Intelligent Manufacturing, Robust Design and Charts. IntechOpen, 2021. DOI <https://doi.org/10.5772/intechopen.95143> .
- 10 Yuan X.-M. Impact of Industry 4.0 on Inventory Systems and Optimization. In Industry 4.0 - Impact on Intelligent Logistics and Manufacturing. IntechOpen, 2020. DOI <https://doi.org/10.5772/intechopen.90077>

## Assessment and grading

### Criteria for assessment of student performance, and the final score structure

The academic achievements of a higher education student are determined based on the criteria and assessment system used at NTU "KhPI"

(<http://surl.li/ppxix>).

Final assessment is conducted based on the results of either a pass/fail evaluation or through an accumulation of points from various types of ongoing academic activities.

Final Grade Composition:

- Active participation during the semester (in classes and, if necessary, in corporate communication channels) – up to 10 points
- Practical assignments – 25 points
- CG (individual assignment) assessment – 25 points
- Final test – 40 points

Additional Recognized Achievements:

- Participation in student competitions, research contests, grants, and scientific research projects – 10 points for each type of activity.
- Publication of scientific articles or conference abstracts related to the course – 10 points for each type of activity.
- Non-formal education (bonus points) pre-approved by the Lecturer – up to 25 points..

### Grading scale

Total points	National	ECTS
90–100	Excellent	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactory	D
60–63	Satisfactory	E
35–59	Unsatisfactory (requires additional learning)	FX
1–34	Unsatisfactory (requires repetition of the course)	F

## Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management.

Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: [https://blogs.kpi.kharkov.ua/v2/nv/?page\\_id=208](https://blogs.kpi.kharkov.ua/v2/nv/?page_id=208)

## Approval

Approved by

Protocol No. 8 dated August 28,  
2024

Head of the department  
Olena PROKHORENKO



Guarantor of the educational  
program  
Olena CHAIKOVA



