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**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
NATIONAL AVIATION UNIVERSITY**

Faculty of Transport, Management and Logistics  
Logistics Department

AGREED

Dean of the Faculty of Transport,  
Management and Logistics



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«09» 01 2023

APPROVED

Vice-Rector for Academics



Anatoliy POLUKHIN

«19» 01 2023



Quality Management System

**COURSE TRAINING PROGRAM**

on

**«Risks Management in Logistics»**

Educational Professional Program: «Logistics»

Field of study: 07 «Management and Administration»

Specialty: 073 «Management»

Mode of study	Semester	Total (hours/credits ECTS)	Lectures	Practicals	Self-Study	HW/CGP	TP/CP	Form of semester control
Full-time:	2	120/4,0	18	18	84	-	-	Examination - 2s

Index: CM-7-073-3/21-2.1.7

**QMS NAU CTP 19.05-01-2023**



The Course Training Program on "Risks Management in Logistics" is developed on the basis of the Educational Professional Program "Logistics", Master Curriculum № CM-7-073-3/21 and Master Extended Curriculum № ECM-073-3/22 for Specialty 073 «Management» and corresponding normative documents.

Developed by:

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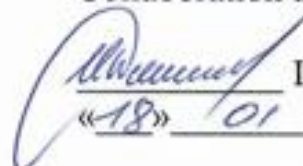
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Discussed and approved by the Graduate Department for Speciality 073 «Management», Educational Professional Program «Logistics» – Logistics Department, Minutes № 21 of 12 . 12 . 2022.

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## INTRODUCTION

Course Training Program on «Risks Management in Logistics» is developed based on the "Methodical guidance for the subject Course Training Program", approved by the order № 249/од, of 29.04.2021 and corresponding normative documents.

### 1. EXPLANATORY NOTES

#### 1.1. Place, objectives, tasks of the subject

The place of the academic subject is to form the profile of a specialist in the field of logistics by mastering the theoretical and practical basis of a set of knowledge and skills in the field of risk management in logistics.

**The main target of the subject** is formation of future specialists' system knowledge on analysis, assessment and modeling of risks and their management during decision-making in logistics systems.

The objectives of the subject are:

- students acquire in-depth theoretical knowledge on the definition and classification of risks, risk management and methods of their prevention;
- students' mastery of methodological tools of a systematic approach to risk management;
- mastering the skills of risk identification and management.

#### 1.2. Learning outcomes the subject makes it possible to achieve

The learning outcomes of this subject in combination with other educational components are:

- LO 2: to be able to identify problems in the organization and justify the methods of solving them;
- LO 5: to be able to plan the activities of the organization in strategic and tactical sections, taking into account possible risks;
- LO 6: have the skills to make, substantiate and ensure the implementation of management decisions in unpredictable conditions, taking into account the requirements of current legislation, ethical considerations and social responsibility;
- LO 17: to be able to use the methodological tools of business analytics when making management decisions.
- LO 19: to be able to use methodological tools for substantiating strategic decisions regarding the management of logistics business processes and the formation of perfect supply chains

We note that knowledge of modern solutions in the field of aviation security forms the necessary competencies of a modern logistics manager.

#### 1.3. Competences the subject makes it possible to acquire

As a result of studying the discipline the student must acquire the following



competencies:

- IC1: ability to solve complex tasks and problems in the field of logistics business process management or in the learning process, which involves conducting research and/or implementing innovations and is characterized by the uncertainty of conditions and requirements;
- GC10: the ability to make decisions in complex and unpredictable conditions, which requires the use of new logistical approaches;
- GC11: the ability to make management decisions in conditions of uncertainty and risk;
- SC4: ability to effectively use and develop the organization's resources;
- SC9: ability to analyze and structure organizational problems, make effective management decisions and ensure their implementation;
- SC17: the ability to manage risks in the functional areas of logistics and supply chains, to develop measures to prevent risky situations, to implement international safety standards of supply chains.

#### **1.4. Interdisciplinary connections**

The academic subject "Risks Management in Logistics" is based on knowledge of such subjects as "Strategic Supply Chain Management", "Business Analysis and Data Processing", "Logistics Management" and Term Paper in the discipline "Logistics Management" and complements the knowledge of such subject as: "Logistics Systems Design".

## **2. COURSE TRAINING PROGRAM ON THE SUBJECT**

### **2.1. The subject content**

The educational material of the subject is structured according to the modular basis and consists of one educational module, namely:

- **Module № 1 «Logistics risk management»** which is a logically complete, relatively independent, integral part of Master Curriculum and Master Extended Curriculum, learning of which provides module test and analysis of its performance.

### **2.2. Modular structuring and integrated requirements for each module**

#### **Module №1 «Logistics risk management».**

Integrated requirements of module №1:

#### **Know:**

- the concept of security in logistics;
- introduction to security management;
- identification of threats;
- essence and systemic characteristics of risk in logistics;



- risk management in logistics;
- systemic risk analysis.
- quantitative methods of risk assessment;
- basics of risk management at a logistics enterprise;
- the basics of the security management system in logistics;
- security technologies and risk management of illegal interference in the global logistics system.

**Learning outcomes:**

- carry out constant monitoring of logistical threats;
- carry out an assessment of the main risks in logistics;
- carry out measures to reduce the level of logistical risks in the areas of technology, norms and rules, training and preparation;
- conduct an analysis of international standards of the security management system in the field of logistics;
- conduct a vulnerability analysis (GAP analysis) of the logistics system.

**Topic 1. The concept of security in logistics.**

Concept of transport system safety. Development of the concept of security. The concept of causality of events - Scheme of causes. Events related to organizational problems. Reason's model. Personnel and security - "SHELL" scheme. Errors and violations. Safety culture. Investigation of security incidents.

**Topic 2. Introduction to security management.**

Security stereotype. The dilemma of logistics enterprise management. The need for security management. Security management strategies of a logistics enterprise. The need for urgent changes. The security system consists of nine components. Four types of security management responsibilities.

**Topic 3. Identification of threats.**

Two basic concepts of threat identification. Types of threats are natural, economic, technical, human. Examples of threats. The first principle is Understanding the threat. The second principle is the identification of the threat. Threat identification. Special circumstances. The third principle is threat management. Direct and indirect security costs. The fourth principle - Documenting the threat. Storage and protection of security information in logistics organizations. Library of threats at a logistics enterprise.

**Topic 4. The essence and systemic characteristics of risk in logistics.**

Risk in a market economy. The main goals of enterprise management and their influence on managerial decision-making. Decision-making under conditions of uncertainty of the economic environment. Classification of risks. Typical risks of a logistics enterprise: preservation of life and health of people, machinery, equipment and commercial loading, economic, financial, currency, political, commercial, business, legal, moral, property, investment risks.

**Topic 5. Risk management in logistics.**



The first principle is risk management. The second principle is the probability of risk. The third principle is the severity of the risk. The fourth principle - Risk assessment, criteria, admissibility. Scheme of risk assessment. Risk matrix. The fifth principle is risk management and mitigation. Risk management strategies – risk prevention, risk reduction, event classification. Types of protection. Scheme of actions to reduce risk. The ALARP principle (maybe reduced to practically expedient).

#### **Topic 6. Systemic risk analysis.**

Risk factors. Purpose of risk analysis. Conditions for risk analysis. A systematic approach to risk analysis. Object, subject and source of risk. General principles of risk analysis. Risk analysis criteria. Sequence of risk analysis. Types of analysis. Quantitative and qualitative risk analysis. Basic methods of quantitative and qualitative analysis. Organization of work during risk analysis.

#### **Topic 7. Quantitative methods of risk assessment.**

General approaches to quantitative risk assessment. Objective and subjective methods. Risk in absolute and relative terms. Dispersion and variation and their use for risk assessment. Degrees of economic risk. Acceptable, critical and catastrophic risks and their quantification. The beta sensitivity coefficient as an estimate of the risk-reward ratio in decision-making. Bankruptcy risk assessment. Liquidity risk. Examples of risk assessment in the organization of air transportation.

#### **Topic 8. Risk management at a logistics enterprise.**

General principles of risk management at a logistics enterprise. A generalized block diagram of the risk management process. Invariant ways of solving risk problems. Ways to reduce risk. Internal and external methods of risk reduction. Risk structure and managers' behavior. Risk subjects: entrepreneurs, owners of venture capital, private investors. Risk and the psychological theory of decisions.

#### **Topic 9. Security management system in logistics and security technology and risk management of illegal interference in the global logistics system.**

Security management of all logistics entities. What is a security management system? Acceptable level of security - implementation, range of application and legal issues. Protection of sources of information about security measures. System description. Analysis of inconsistencies. Safety management system and quality management system. Integration of management systems in logistics. Gantt table. A step-by-step approach to the implementation of the security management system in logistics. Ensuring the safety of freight transportation chains (ICAO regulatory framework). Security requirements of aviation operators, regulated agents, shippers. Consistency of the chain of document circulation while ensuring the safety of cargo transportation. Express document flow model. Security of postal supply chains. Postal electronic information exchanges. Regional features of ensuring the security of cargo and postal transportation chains (EU countries, USA, Canada, New Zealand, transportation of EU countries - China, etc.).



### 2.3. Training schedule of the subject

№	Topic (thematic section)	Total, hour			
		Total	Lectures	Practicals	Self-study
1	2	3	4	5	6
<b>Module №1 «Logistics risk management»</b>					
<b>2 semester</b>					
1.1	The concept of security in logistics	12	2	2	8
1.2	Introduction to security management	12	2	2	8
1.3	Identification of threats	12	2	2	8
1.4	The essence and systemic characteristics of risk in logistics	13	2	2	9
1.5	Risk management in logistics	13	2	2	9
1.6	Systemic risk analysis	13	2	2	9
1.7	Quantitative methods of risk assessment	13	2	2	9
1.8	Risk management at a logistics enterprise	13	2	2	9
1.9	Security management system in logistics and security technology and risk management of illegal interference in the global logistics system	16	2	-	14
1.10	Module Test № 1	3	-	2	1
<b>Total for the module 1</b>		<b>120</b>	<b>18</b>	<b>18</b>	<b>84</b>
<b>Total by the subject</b>		<b>120</b>	<b>18</b>	<b>18</b>	<b>84</b>

### 2.4. List of Examination Questions

The list of questions and the content of the tasks for the preparation for the exam are developed by the leading teachers, approved by the minutes of the meeting of the department and made known to the students.

## 3. BASIC CONCEPTS OF GUIDANCE ON THE SUBJECT

### 3.1. Teaching methods

The following teaching methods are used in the study of the subject:

- explanatory and illustrative method;
- method of problem presentation;
- reproductive method;
- discussions and role-playing games.

The implementation of these methods is carried out during lectures, practical classes, independent problem solving, work with educational literature, etc.





## 3.2. List of references (basic and additional)

### Basic literature

3.2.1. Mohammad Heydari, Kin Keung Lai, Zhou Xiaohu. (2020). Risk Management in Supply Chains: Using Linear and Non linear Models. URL: [https://books.google.ch/books?hl=uk&lr=&id=OGUPEAAAQBAJ&oi=fnd&pg=PP1&dq=supply+chain+risk+management+book&ots=C215lyo\\_dV&sig=E09uhfYJsmogj2cHI4x9g52PDpQ#v=onepage&q=supply%20chain%20risk%20management%20book&f=false](https://books.google.ch/books?hl=uk&lr=&id=OGUPEAAAQBAJ&oi=fnd&pg=PP1&dq=supply+chain+risk+management+book&ots=C215lyo_dV&sig=E09uhfYJsmogj2cHI4x9g52PDpQ#v=onepage&q=supply%20chain%20risk%20management%20book&f=false).

3.2.2. John Manners-Bell. (2018). Supply Chain Risk Management: How to Design and Manage Resilient Supply Chains. John Manners-Bell. URL: <https://books.google.ch/books?hl=uk&lr=&id=go4EEAAAQBAJ&oi=fnd&pg=PP1&dq=supply+chain+risk+management+book&ots=HeRKpaHpFy&sig=qPbpj2BFjYa0J81ZP7Z9kJhIA2U#v=onepage&q=supply%20chain%20risk%20management%20book&f=false>.

3.2.3. Kersten, Wolfgang. Blecker, Thorsten. Ringle, Christian M. (2017). Innovations and Strategies for Logistics and Supply Chains: Technologies, Business Models and Risk Management. URL: <https://www.econstor.eu/handle/10419/209189>.

3.2.4. Methodological developments of the department (in electronic form).

### Additional literature

3.2.5. Bugayko D.O., Shevchenko O.R., Perederii N.M., Sokolova N.P., Bugayko D.D. (2022). «Risk management of Ukrainian aviation transport post-war recovery and sustainable development». – Intellectualization of logistics and Supply Chain Management. [Online], vol.16, pp.6-22, available at: <https://smart-scm.org/en/journal-16-2022/risk-management-of-ukrainian-aviation-transport-post-war-recovery-and-sustainable-development/>. DOI: <https://doi.org/10.46783/smart-scm/2022-16-1>.

3.2.6. Dmytro Bugayko, Yuliya Ierkovska, Fariz Aliev, Mariia Bahrii. The Concept of National Integrated Risk Management of Aviation Transport of Ukraine. Intellectualization of Logistics and Supply Chain Management. The electronic scientifically and practical journal v.10 (2021). P.6 – 18. ISSN 2708-3195 <https://smart-scm.org>.

3.2.7. Калініченко З.Д. Ризик-менеджмент: навчальний посібник для здобувачів спец. 051 «Економіка» та 073 «Менеджмент» / З.Д. Калініченко. Дніпро: ДДУВС, 2021. 224 с. ISBN 978-617-7665-67-6

3.2.8. Кривов'язюк І. В., Смерічевський С. Ф., Кулик Ю. М. Ризик-менеджмент логістичної системи машинобудівних підприємств: монографія. К.: Видавничий дім «Кондор», 2018. 200 с.

3.2.9. Мороз В.М. Ризик-менеджмент : навч. посібник для студ. спец. 281 «Публічне управління та адміністрування» / В.М. Мороз, С.А. Мороз. – Харків : НТУ «ХПІ», 2018. – 140 с.



3.2.10. Боровик М. В. Ризик-менеджмент: конспект лекцій для студентів магістратури усіх форм навчання спеціальності 073 – Менеджмент / М. В. Боровик; Харків. нац. ун-т міськ. госп-ва ім. О. М. Бекетова. Харків : ХНУМГ ім. О. М. Бекетова, 2018. 65 с.

3.2.11. Ткаченко І. О. Ризики у транспортних процесах : навч. посібник / І. О. Ткаченко; Харків. нац. ун-т міськ. госп-ва ім. О. М. Бекетова. Харків : ХНУМГ ім. О. М. Бекетова, 2017. 114 с.

3.2.12. Керівництво по управлінню безпекою, 4 видання: ІСАО, Doc 9859 AN/460, Canada, Montreal, : ІСАО, 2018. 182 с.

3.2.13. Харазішвілі Ю.М., Бугайко Д.О., Ляшенко В.І. Сталий розвиток авіаційного транспорту України: стратегічні сценарії та інституційний супровід: монографія / за ред. Ю.М. Харазішвілі; НАН України, Ін-т економіки промисловості. Київ, 2022. 276 с.

3.2.14. Бугайко, Д.О. Харазішвілі, Ю.М. Теоретичні засади стратегічного управління безпекою авіаційної галузі у контексті забезпечення сталого розвитку національної економіки. Вісник економічної науки України, 2020, 1. С.: 166-175.

### 3.3. Internet resource

3.3.1. Інтернет портал інституту ризик-менеджменту: офіційний веб-портал. URL: <http://theirm.org/the-risk-profession/risk-management.aspx>

3.3.2. Supply Chain Digest (новини зі світу управління ланцюгами поставок). URL: <http://scdigest.com/>. Назва з екрану.

3.3.3 Logist.FM (новини, рішення та публікації з логістики). URL: <http://logist.fm/>. Назва з екрану.

## 4. RATING SYSTEM OF KNOWLEDGE AND SKILLS ASSESSMENT

4.1. Grading of different kinds of academic activities completed by a student is done in accordance with Table 4.1.

Table 4.1

Kind of academic activities	Max grade
	Full-Time Study 5 semester
<b>Module № 1 «Logistics risk management»</b>	
Work in practical classes, solving situational problems	3 g. × 10 = 30
Performing express control works and tests	5 g. × 4 = 20
<i>For carrying out module test № 1, a student must receive not less than</i>	<i>30 grades</i>
Carrying out Module Test № 1	<b>30</b>
<b>Total for the module № 1</b>	<b>80</b>
<b>Semester examination</b>	<b>20</b>
<b>Total for the subject</b>	<b>100</b>



4.2. A student gets a credit for the completed assignment if the student's performance has been assessed positively.

4.3. The total of Grades for individual academic activities completed by a student constitutes a Current Semester Module Grade, which is entered into the Module Control Register.

4.4. The sum of the Current Semester Module Grade and exam rating, in grades, constitutes the final semester rating, which is converted into grades according to the national scale and the ECTS scale.

4.5. The final semester rating in points, on the national scale and the ECTS scale is entered in the test report, study card and individual curriculum of the student (record book), for example, as follows: **92 / Excellent / A, 87 / Good / B, 79 / Good / C, 68 / Sat./D, 65 / Sat./E, etc.**

4.6. The Total Grade for the subject is equal to the average grade from Total Semester Grades with its further transformation into national scale and ECTS system.



(Ф 03.02 – 01)

### АРКУШ ПОШИРЕННЯ ДОКУМЕНТА

№ прим.	Куди передано (підрозділ)	Дата видачі	П.І.Б. отримувача	Підпис отримувача	Примітки
	<i>Меллер</i>	<i>19.01.23</i>	<i>Шульц</i>	<i>[Signature]</i>	

(Ф 03.02 – 02)

### АРКУШ ОЗНАЙОМЛЕННЯ З ДОКУМЕНТОМ

№ пор.	Прізвище ім'я по-батькові	Підпис ознайомленої особи	Дата ознайомлення	Примітки

(Ф 03.02 – 04)

### АРКУШ РЕЄСТРАЦІЇ РЕВІЗІЇ

№ пор.	Прізвище ім'я по-батькові	Дата ревізії	Підпис	Висновок щодо адекватності

(Ф 03.02 – 03)

### АРКУШ ОБЛІКУ ЗМІН

№ зміни	№ листа (сторінки)				Підпис особи, яка внесла зміну	Дата внесення зміни	Дата введення зміни
	Зміненого	Заміненого	Нового	Анульованого			

(Ф 03.02 – 32)

### УЗГОДЖЕННЯ ЗМІН

	Підпис	Ініціали, прізвище	Посада	Дата
Розробник				
Узгоджено				
Узгоджено				
Узгоджено				