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

Faculty of Transport, Management and Logistics  
Logistics Department

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«29» 11 2023

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«30» 11 2023



Quality Management System

**COURSE TRAINING PROGRAM**

on

**“Transport Logistics”**

Educational Professional Program: “Multimodal Transport and Logistics”

Field of study: 27 “Transport”

Specialty: 275 “Transport technology (on air transport)”

Specialization: 275.04 “Transport technology (on air transport)”

Form of study	Semester	Total (hours/ECTS credits)	Lectures	Laboratory Classes	Self-study	HW/CGP/C	TP/CPr	Form of semester control
Full-time	7	120/4.0	17	34	69	-	-	Graded Test – 7s.

Index: CB-7-275.04-3/21-3.13

**QMS-NAU CTP 19.05–02–2023**



Quality Management System  
Course Training Program  
on  
«Transport Logistics»

Document  
Code

QMS NAU  
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The Course Training Program on “Transport Logistics” is developed on the basis of the Educational Professional Program “Multimodal Transport and Logistics”, Bachelor Curriculum № CB-7-275.04-3/21 and Bachelor Extended Curriculum № ECB-7-275.04-3/23 for Specialty 275 “Transport technology (on air transport)”, Specialization 275.04 “Transport technology (on air transport)”, and corresponding normative documents.

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Discussed and approved by Logistics Department, Minutes № 18 of 20.11.2023.

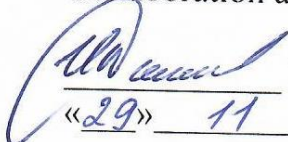
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«29» 11 2023

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**Master copy**



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## INTRODUCTION

Course Training Program on “Transport 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 this subject is to form a profile of a specialist in the field of logistics by mastering the theoretical and practical basis of a set of knowledge and skills.

**The aim of the subject** “Transport Logistics” is the formation of a system of knowledge and skills in the organization of transport management as a participant in the logistics chain, the organization of transportation in the consolidation and distribution of goods, assessing its quality and developing optimal schemes of transport processes in a rapidly changing market environment.

**The tasks** of studying the subject are:

- acquisition of skills in choosing optimal modes of transport and types of transport for passengers, baggage, cargo, and mail in delivery chains.
- development of technological schemes for the delivery of passengers, baggage, cargo, and mail while adhering to international and national rules and standards for organizing passenger and freight transport.
- acquisition of skills in preparing transport and accompanying documentation and applying tariffs for various modes of transport.
- acquisition of skills in freight forwarder activity in organizing supply chains of goods.
- acquisition of skills in optimizing the carrier’s transport operations.

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


As a result of the study of the subject, the student must achieve the following following **learning outcomes** (hereinafter referred to as LO) in combination with other educational components:

LO14. Organize and manage the transportation of passengers and baggage in various connections. Select the mode, brand, type of transport (vessels), and routes. Coordinate passenger services at stations and passenger terminals.

LO15. Evaluate the parameters of transportation flows. Design schemes and networks of transportation systems. Develop technologies for the operational management of transportation flows.

LO16. Choose effective technologies for the interaction of transportation modes. Analyze the possibilities of applying various options for the interaction of transportation modes.

LO17. Develop supply chains and assess their efficiency.

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LO25. Utilize methods for organizing transport and forwarding services for various types of connections.

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

As a result of studying the subject the student must acquire the following integral **competencies** (hereinafter referred to as the IC), general competencies (hereinafter referred to as the GC), professional competencies (hereinafter referred to as the PC) in combination with other educational components:

IC 1. The ability to solve complex specialized tasks and address practical issues in the field of transportation using theories and methods of modern transport science based on a systemic approach and considering the complexity and uncertainty of the operating conditions of transportation systems.

PC 3. The ability to organize and manage the transportation of goods using various modes of transport.

PC 5. The ability to operationally manage the movement of transportation flows.

PC 6. The ability to organize the interaction of transportation modes.

PC 7. The ability to optimize logistic operations and coordinate orders for transporting goods from the manufacturer to the consumer, adhering to laws, rules, and quality management system requirements.

PC 12. The ability to organize international transportation.

PC 15. The ability to organize transport and forwarding services for goods.

### 1.4. Interdisciplinary connections

Interdisciplinary connections: “Transport Logistics” is based on the knowledge of subjects: “Transport Infrastructure”, “Passenger Transportation”, “Cargo Science”, “International Transportation”, “Transport and Logistics Systems and Processes”, accompanied with “Fundamentals of Transport Process Designing” and provides basic knowledge of subjects: “Transport and Logistics Systems and Processes”, “Evaluation of the Multimodal Transportation Efficiency”, “Fundamentals of Intermodal Transport Technologies” and others.

## 2. COURSE TRAINING PROGRAM ON THE SUBJECT

### 2.1. The subject content

Training material is structured according to the module principle and consists of one educational module:

– **Module 1 “Theoretical and Practical Aspects of Transport Logistics”**, which is logical, completed, relatively independent, integral part of Bachelor Curriculum and Bachelor Extended Curriculum, learning of which provides module test and analysis of its performance.



## 2.2. Module structuring and integrated requirements for each module

### Module 1 Theoretical and Practical Aspects of Transport Logistics

Integrated requirements to the module 1:

#### Know:

- key definitions and terms of the academic discipline.
- the role of transportation in logistics.
- modern freight transportation systems, the essence of the unified transportation process.
- principles of operation of inter/multimodal systems.
- principles of cargo handling in logistics systems.
- logistic aspects of cargo handling, packaging, and transportation labeling of goods.
- methodology of route planning for transportation.
- national and international regulatory documents governing the rules for organizing cargo transportation on various modes of transport.
- international and national organizations whose activities are aimed at improving and simplifying procedures during the organization of cargo transportation.
- technological aspects and schemes of organizing cargo transportation by road, sea/river, rail, and air transport.
- types of transport and accompanying documents for cargo during domestic and international transportation.
- features of Incoterms conditions: the transfer of costs and risks for the cargo from the shipper.

#### Learning outcomes:

- to select optimal transportation options, modes of transport, types of vehicles, and carriers to optimize the parameters of the transportation process.
- to apply the principles of operation of inter/multimodal systems when transporting goods.
- to optimize cargo units; use packaging as an element of the logistics system.
- to utilize regulatory documents that govern the transportation of goods by various modes of transport.
- to organize the sale and booking of freight transportation.
- to prepare relevant transport documents and adhere to corresponding freight tariffs.
- to apply Incoterms rules in the transportation of goods.
- to organize informational and documentary support for international and domestic passenger, baggage, and cargo transportation.



### **Topic 1. Transport as a logistics chain participant**

The role of transportation in logistics. Decentralization and liberalization of the transport services market. Transport logistics: the main tasks. Comparative analysis of different types of transport at the micro and macro levels of the logistics system. Logistic principle of interaction of transport participants. A generalized algorithm for organizing cargo transportation.

The single transport process: essence, principles of formation, structure. Indicators of the transport process. Analysis of the efficiency of the transport process.

Types of transportation: intermodal, multimodal, unimodal transportation. Principles of functioning of inter / multimodal system. Advantages and efficiency of inter / multimodal transportation. Technological schemes of transportation. “Door-to-door” and “just in time” delivery systems. Legal relations of participants in inter / multimodal transportations. Interaction problems of transport modes in the different delivery systems.

### **Topic 2. Legal support for the organization of transportation of passengers, baggage, mail and cargo by road**

National regulatory framework for the transportation of passengers, luggage, mail and cargo by road.

Permissive system for international road freight transportation. Features of filling out the CMR international waybill.

Accompanying documents for international road transportation and their destination.

National and international regulation of working time and rest time of drivers of wheeled vehicles. Devices for fixing the time of work and rest of drivers.

Motor transport insurance.

National and international organizations in the field of road freight transportation.


### **Topic 3. Technological and commercial support for the organization of transportation of passengers, luggage, mail and cargo by road**

Types and characteristics of motor vehicles for the transportation of passengers and cargo, depending on the specifics of the latter.

Determining the cost of passenger/cargo transportation by road. Formation of tariffs for automobile passenger / cargo transportation.

### **Topic 4. Routing traffic**

Methods of routing traffic. Distribution of goods in Ukraine using intermediate warehouses (cross-docking): advantages and disadvantages of technology, choice of warehouse location and logistics provider.

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Organization of regular routes. Calculation of the duration and cost of transportation. Calculation of efficiency of delivery system.

Working with unplanned orders. Analysis of the route chain and identification of bottlenecks, development and implementation of a complex of measures for their elimination. Minimization of unscheduled deliveries at the enterprise: identification of causes, development of measures for their elimination.

### **Topic 5. Legal support for the organization of cargo transportation by sea**

Peculiarities of international regulation of cargo transportation by sea: conventions on the unification of international rules of cargo transportation by sea: Hague Rules of 1924 and Hague-Visby Rules of 1968, Hamburg Rules of 1978, Rules for Electronic Bills of Lading of 1990, International Convention on Load Lines of 1966, etc.

Peculiarities of national legislation: organization of sea transportation of goods, vessel chartering, sea towing and marine insurance in accordance with the Code of Merchant Shipping of Ukraine and the Law of Ukraine "On Inland Water Transport".

International and non-governmental international organizations and their role in regulating the rules of cargo transportation by sea.

### **Topic 6. Technological and commercial support for the organization of transportation of passengers, baggage, mail and cargo by sea**

Types and characteristics of sea and river vessels for passenger/cargo transportation, depending on the their specifics.

Features of line service of sea lines: line conferences and outsiders. Pools, consortia of conferences, alliances of linear operators. Trump operators and charter cargo transportation by sea, types of chartering agreements. Trade practices in sea transportation. Influence of conditions of contracts of purchase and sale of the goods on the organization of sea transportations.

Container movement and cost allocation for packaging / container unpacking. Penalties for the organization of delivery of goods by container by sea: demurrage, detention. Features of the organization of transportation of deck cargoes.

Other shipping companies: stevedoring, talman and surveying companies. Stevedoring works and terms of their payment.

Components of sea freight: base rates and other fees to the base rate.

Basic documents for sea transportation and features of their filling: bill of lading, letter of guarantee, manifesto, Mate's Receipt, timesheet / statement, commercial act.





### **Topic 7. Legal support of the organization of transportation of passengers, baggage, mail and cargo by rail**

International organizations on rail transport and their role in the legal provision of freight transport.

Convention on International Railway Carriage (COTIF). Uniform rules for the contract on the international railway carriage of passengers (CIV) and cargo (CIM): basic principles of CIV and CIM, features of cargo registration. Agreement on international rail freight transport (UMVS): the structure of the UMVS, the peculiarities of cargo registration between the member countries of the UMVS, the Guide to the consignment note CIM / UMVS.

### **Topic 8. Technological and commercial support for the organization of transportation of passengers, baggage, mail and cargo by rail**

Types and characteristics of railway rolling stock for passenger / cargo transportation depending on their specifics.

Schemes of organization of cargo transportation in domestic and international traffic. The order of registration of transport documents and features of their filling: the consignment note of Ukrzaliznytsia for internal transportations, the consignment note of CIM, the consignment note of UMVS, the consignment note of CIM / UMVS. Basic principles of concluding a contract of carriage (all types), the scheme of concluding a contract for the carriage of goods with Ukrzaliznytsia. Accompanying documents to the cargo during rail transportation.

### **Topic 9. Legal support of the organization of transportation of passengers, baggage, cargo and mail by air**

Peculiarities of international transportation of passengers and cargo. Chicago Convention on International Civil Aviation. Bilateral and multilateral air service agreements. Freedom of the air.

Montreal Convention 1999: documentation and obligations of the parties relating to the carriage of passengers, their baggage and cargo.

IATA specialized publications as a basis of best practices for handling and conditions for the carriage of cargo and passengers.

Peculiarities of the national legal provision of cargo transportation by air transport: Air Code, Licensing conditions for carrying out business activities involving the transportation of passengers, dangerous goods and hazardous waste by air transport, Aviation Rules of Ukraine "Rules of Air Transportation and Passenger and Baggage Service", Aviation Rules of Ukraine "Rules of Air Transportation of cargo", Aviation Rules of Ukraine "Procedure for granting, termination of validity, refusal to grant permits for the departure of aircraft for the transportation of goods of military purpose and dual use".



## **Topic 10. Planning of transportation of passengers, baggage, cargo and mail by air transport**

Commercial agreements of airlines. Legal features of aircraft leasing. Business aviation.

Peculiarities of the organization of transportation of passengers and cargo during international transportation. Types of airport formalities when transporting passengers, luggage and cargo on international air lines. Ensuring aviation safety during the transportation of passengers, baggage and cargo by air transport.

Organization of attraction of passengers and cargo for air transport. Organization and technology of sale and reservation of transportation. The main sales channels of passenger and cargo transportation.

Selection of cargo transportation route and carrier. Shipper's instructions. Cargo ready for transportation by air according to IATA requirements.


Air waybill (AWB), its purpose, procedure for registration and applying. Air cargo tariffs, their classification, application. Applying The Air Cargo Tariff Guide. The cost structure of air transportation.

## **Topic 11. Logistic intermediaries and their role in the transport process.**

General characteristics of intermediary activities in transport. The main types and specializations of transport and forwarding companies. Models of freight forwarding systems. Forwarding of international shipments and cooperation of forwarders. Selection of forwarder: criteria and algorithm. Transport outsourcing and subcontracting: an algorithm for solving the problem of buying one's own transport - ordering services from a transport carrier. Carrier selection procedure, methods and models.

Transport and forwarding service: role, specifics, development prospects. Rules of transport and forwarding service. Legal relations between the freight forwarder and the client, with the carrier.

Peculiarities of using FIATA documents and forms by the transport and forwarding company.

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### 2.3. Training schedule of the subject

№	Topic (thematic section)	Total, hour			
		Total	Lectures	Laboratory Classes	Self-study
1	2	3	4	5	6
<b>Module 1 “Theoretical and Practical Aspects of Transport Logistics”</b>					
<b>7 semester</b>					
1	Transport as a logistics chain participant. Organization of the unified transport process	11	2	2 2	5
2	Legal support for the organization of transportation of passengers, baggage, mail and cargo by road	11	2	2 2	5
3	Technological and commercial support for the organization of transportation of passengers, luggage, mail and cargo by road. Routing traffic	20	2	2 2 2	12
4	Legal support for the organization of cargo transportation by sea	12	2	2	8
5	Technological and commercial support for the organization of transportation of passengers, baggage, mail and cargo by sea	11	2	2 2	5
6	Legal support of the organization of transportation of passengers, baggage, mail and cargo by rail. Technological and commercial support for the organization of transportation of passengers, baggage, mail and cargo by rail	14	2	2 2	8
7	Legal support of the organization of transportation of passengers, baggage, cargo and mail by air	20	2	2 2	14
8	Planning of transportation of passengers, baggage, cargo and mail by air transport	9	2	2	5
9	Logistic intermediaries and their role in the transport process	7	1	2	4
10	Module Test №1	5	-	2	3
<b>Total by the module №1</b>		<b>120</b>	<b>17</b>	<b>34</b>	<b>69</b>
<b>Total by the subject</b>		<b>120</b>	<b>17</b>	<b>34</b>	<b>69</b>

## 3. BASIC CONCEPTS OF GUIDANCE ON THE SUBJECT

### 3.1. Teaching methods

The following teaching techniques are applied in the study of the subject:  
- explanatory-illustrative method;



- method of problem statement;
- reproductive method;
- research method;
- business game and bussiness cases.

The implementation of these methods is carried out during lectures, demonstrations, independent problem solving, work with educational literature, analysis and solution of problems with transport and logistics services.

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

#### Basic literature:

3.2.1. Transport and Logistics Planning and Optimization / Abdelhamid Benaini, Jaouad Boukachour. IGI Global, 2023. 317 p.

3.2.2. Dong-Ping Song. Container Logistics and Maritime Transport. Routledge, 2021. 414 p.

3.2.3. The Logistics and Supply Chain Toolkit: Over 100 Tools for Transport, Warehousing and Inventory Management / Gwynne Richards. 3rd Edition. Kogan Page, 2020. 424 p.

3.2.4. Cargo Science and Logistics: Textbook / T. Gabrielova, S. Lytvynenko, V. Ivannikova, L. Lytvynenko, I. Borets. Kyiv: Publishing House “Condor”, 2020. 268 p.

#### Additional literature:

3.2.5. Sarder M.D. Logistics Transportation Systems. Elsevier, 2020. 454 p.

3.2.6. Gonzalez-Feliu, Jesus. Logistics and Transport Modeling in Urban Goods Movement. IGI Global, 2019. 273 p.

3.2.7. Hendrickson, Jim. Transportation Management: A Practical Handbook. Heartland Professional Services, 2019. 302 p.

3.2.8. Didem Cinar, Konstantinos Gakis, Panos M. Pardalos Sustainable Logistics and Transportation: Optimization Models and Algorithms. Springer, 2018. 264 p.

### 3.3. Internet Information Resources

3.3.1. Official website of The Verkhovna Rada of Ukraine. URL: <http://zakon.rada.gov.ua>

3.3.2. Logistic Know How. URL: <https://logistikknowhow.com/en/>


3.3.3. NAU Electronic Library. URL: <http://www.lib.nau.edu.ua/elbook/>

3.3.4. Official website of Ministry of Infrastructure of Ukraine. URL: <https://mtu.gov.ua/>

3.3.5. Official website of Ukrzaliznytsia. URL: <https://uz.gov.ua/>

3.3.6. Official website of AsMAP of Ukraine. URL: <http://www.asmap.org.ua/>

3.3.7. Official website of The State Aviation Service of Ukraine. URL: <https://avia.gov.ua/>

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3.3.8. Inbound Logistics. URL: <https://www.inboundlogistics.com/cms/>

3.3.9. Supply Chain Digest URL: <http://scdigest.com/>.

3.3.10. Council of Supply Chain Management Professional URL: <https://cscmp.org/>.

3.3.11. Supply Chain Brain URL: <https://www.supplychainbrain.com/>.

3.3.12. Methodical guidelines of the department (in electronic form).

#### 4. RATING SYSTEM OF KNOWLEDGE AND SKILLS ASSESSMENT

4.1. Assessment of certain kinds of student academic activities is carried out in accordance with table 4.1.

Table 4.1

Kind of academic activities	Max grade
	Full-Time Study 7 semester
<b>Module 1 “Theoretical and Practical Aspects of Transport Logistics”</b>	
Carrying out tasks on on Laboratory Classes with solving situational cases in transport logistics	72 (summary) (8points x 9 lab)
<i>For carrying out module test 1, a student must receive not less than</i>	43
Carrying out Module Test 1	<b>28</b>
<b>Total by the module 1</b>	<b>100</b>
<b>Total by the subject</b>	<b>100</b>

*The Graded Test Grade is determined (in grades and on a national scale) based on the results of all kinds of academic activities during the semester.*

4.2. A student gets a credit for the completed assignment if the student’s performance has been assessed positively (Appendix 1).

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 total of the Current Module Grade and Module Test Grade constitutes Graded Test Grade, which is converted into a grade on the national scale and the ECTS scale (Appendix 2).

4.5. The Graded Test Grade is entered in an Examination Register, a student’s record book and academic card, e.g.: **92/Ex/A, 87/Good/B, 79/Good/C, 68/Sat/D, 65/Sat./E**, etc.

4.6. The Total Grade on the subject corresponds to the Graded Test Grade. The Total Grade on the subject is entered into Diploma Supplement.



(Ф 03.02 – 01)

### АРКУШ ПОШИРЕННЯ ДОКУМЕНТА

№ прим.	Куди передано (підрозділ)	Дата видачі	П.І.Б. отримувача	Підпис отримувача	Примітки

(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	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				