(Ф 03.02 – 110)

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

Tetyana MOSTENSKA
«13» 01 2023

APPROVED
Vice-Rector for Academics

Anatoliy POLUKHIN
«19» 01 2023

Quality Management System
COURSE TRAINING PROGRAM

on

«Reverse Logistics and Recycling»

Educational Professional Program: "Logistics"
Field of study: 07 «Management and Administration»
Specialty: 073 «Management»

Mode of study	Seme-ster	Total (hours/ ECTS credits)	Lectures	Practicals	Self-study	HW/ CGP/C	TP/ CPr	Form of semester control
Full-time	2	120 / 4.0	18	18	84	-	-	Graded Test 2s.

Index: CM-7-073-3/21-3.5

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

Developed by:

Associate Professor
of the Logistics Department _____ Lidia SAVCHENKO

Senior Lecture
of the Logistics Department _____ Larysa SHCHEKHOVSKA

Discussed and approved by the Graduate Department for Specialty 073 "Management", Educational Professional Program "Logistics" – Logistics Department, Minutes № 21 of 12.12.2022.

Guarantor of the Educational
Professional Program "Logistics" _____ Svitlana SMERICHEVSKA

Head of the Department _____ Viacheslav MATVIEIEV

Vice-Rector on International Collaboration
and Education
_____ Iryna ZARUBINSKA
«18» 01 2023

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ЗМІСТ

INTRODUCTION

The Course Training Program on «Reverse Logistics and Recycling» 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

Place of the academic subject in the system of professional training 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 reverse flow management and recycling.

The main target of the subject is the formation of students' theoretical knowledge and practical skills in planning and management of reverse flows and recycling.

The objectives of the subject are:

- acquisition of theoretical knowledge on the management of reverse flows and recycling;
- formation of skills to use the methodological toolkit of reverse flow management and recycling for solving practical problems;
- acquisition of skills to reduce the volume of reverse flows, increase the volume of recycling, and optimize their logistical support.

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 **learning outcomes**:

- PLO1. Critically consider, choose and use the necessary scientific, methodical and analytical tools for management in unpredictable conditions;
- PLO5. Plan the activities of the organization in strategic and tactical sections;
- PLO14. Demonstrate in-depth knowledge of the essential properties of modern logistics concepts and structural features of the formation of logistics systems, patterns of design, operation and development of logistics systems;
- PLO15. Manage financial flows in logistics systems, optimize logistics costs and develop a budget for logistics activities;

- PLO16. Use information technologies and information systems to monitor and optimize logistics processes and systems based on the processing of large databases;
- acquiring the skills of forming an online store's return policy;
- acquiring the skills of a comprehensive assessment of the feasibility of introducing the concept of zero return;
- acquisition by students of theoretical knowledge on the peculiarities of waste flows as an object of reverse logistics and recycling logistics;
- acquiring the skills of analysis and selection of information technologies in the management of reverse flows.

1.3. Competencies the subject makes it possible to acquire

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

- IC1. To be able 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;
- GC3. Skills in using information and communication technologies;
- GC8. To be able to form conclusions and recommendations based on the results of research, to calculate the effectiveness of scientific research;
- PC4. To be able to use and develop the organization's resources effectively;
- to use methodological tools when making management decisions;
- the ability to effectively use and develop the organization's resources;
- the ability to make informed decisions regarding the management of reverse flows;
- justify and manage projects, generate business ideas.

1.4. Interdisciplinary connections

“Reverse Logistics and Recycling” is based on the knowledge of subjects: "Logistics Management", "Strategic Supply Chain Management" and complements the knowledge of such subjects as: “Risks Management in Logistics”, "Logistics Systems Design" 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 «Management of reverse flows and recycling», which is a logically complete, relatively independent, integral part of the curriculum, learning of which provides for modular test and analysis of its implementation.

2.2. Modular structuring and integrated requirements for each module

Module №1 «Management of reverse flows and recycling»
Integrated requirements to the module 1:
Know:

– the place of reverse flows and recycling in the logistics chain;
– types of reverse flows, their sources and ways of reducing volumes;
– peculiarities of e-commerce returns and recycling logistics;
– methodology for calculating the costs of reverse logistics and the economic feasibility of recycling;
– methodology for assessing the feasibility of implementing the concept of zero return;
– peculiarities of waste flows as an object of reverse logistics and recycling logistics;
– information technologies in the management of reverse flows and recycling.

Learning outcomes:

– identify, analyze and optimize the reverse flows and recycling system of the enterprise;
– develop recommendations for reducing the volume of reverse flows, increasing the volume of recycling, optimizing their logistical support;
– analyze the existing and form a rational return policy in electronic commerce;
– calculate the costs of reverse logistics and evaluate the comprehensive efficiency of recycling;
– evaluate the feasibility of introducing the concept of zero return;
– manage waste flows as an object of reverse logistics and recycling logistics;
– analyze and select software products in reverse flow management.

Topic 1. Fundamentals of reverse flow management and recycling.

The history of reverse logistics and recycling logistics. Terminology development, controversial issues regarding the limits and objectives of reverse flow management and recycling. An overview of the main points of view regarding reverse material, information, financial and service flows.

Topic 2. Reverse flows.

Types of reverse flows. Sources of reverse flows. Possible ways of movement of reverse flows. Possibilities for reducing the volume of reverse flows.

Topic 3. Logistics of e-commerce returns.

Trends in the development of electronic commerce. Returns in e-commerce, their features. Ways of movement of reverse material, information, financial and service flows in electronic commerce.

Topic 4. Formation of the policy of the online store regarding returns.

An overview of modern approaches to return policy. Analysis of time frames, cost of returns, return technology from the client's side. Psychological aspects in the formation of online store policies that reduce the volume of returns.

Topic 5. Costs of reverse logistics - economic, environmental, social. Comprehensive assessment of the economic feasibility of recycling.

Analysis of losses from reverse flows. Analysis of financial costs. Analysis of environmental and social damages. Methods of reducing costs of reverse logistics. Social, environmental and economic benefits of recycling.

Topic 6. Zero return - effectiveness and areas of expediency of applying the scheme.

Replacement of the returned product at a significant cost of transportation. Review of situations with feasibility of zero returns. Determining the limits of the economic feasibility of zero return.

Topic 7. Waste as an object of reverse logistics and recycling logistics.

Analysis of places of origin of waste in material flows. Review of opportunities for directing these flows - ecological aspect, opportunities for savings. Competent disposal of waste as a way to reduce company costs.

Topic 8. Information technologies in the management of reverse flows and recycling.

Overview of modern software products, electronic tools for improvement,

cost reduction, optimization, analysis of reverse flows. Analysis of development trends of software products, discussion of trends.

2.3. Training schedule of the subject

№	Theme (thematic section)	Total, hour			
		Total	Lectures	Practicals	Self-study
1	2	3	4	5	6
Module No. 1 " Management of reverse flows and recycling "					
2 semester					
1	Fundamentals of reverse flow management and recycling.	14	2	2	10
2	Reverse flows.	14	2	2	10
3	Logistics of e-commerce returns.	14	2	2	10
4	Formation of the policy of the online store regarding returns.	14	2	2	10
5	Costs of reverse logistics - economic, environmental, social. Comprehensive assessment of the economic feasibility of recycling.	16	2	2 2	10
6	Zero return - effectiveness and areas of expediency of applying the scheme.	14	2	2	10
7	Waste as an object of reverse logistics and recycling logistics.	14	2	2	10
8	Information technologies in the management of reverse flows and recycling.	14	2	2	10
9	Module Test #1	6	2	-	4
Total by the module №1		**120**	**18**	**18**	**84**
Total by the subject		**120**	**18**	**18**	**84**

3. BASIC CONSEPTS OF GUIDANCE ON THE SUBJECT

3.1. Teaching methods

It is recommended to use the following teaching methods during mastering the subject: work in small groups, seminar-discussion, brainstorming, case, presentation, business game.

The implementation of these methods are carried out during lectures, demonstrations, self-study, work with the educational material, analysis and solution of problems.

3.2. List of references

Basic literature

3.2.1. Hrytsenko S. I. Ecology: a study guide / S. I. Hrytsenko, L. V. Savchenko. K.: NAU, 2021. 260 p.

3.2.2. Guarnieri P., Silva L.C., de Oliveira Vieira B. How to Assess Reverse Logistics of E-Waste Considering a Multicriteria Perspective? A Model Proposition. Logistics 2020, 4, 25.

3.2.3. Alarcón F., Cortés-Pellicer P., Pérez-Perales D., Mengual Recuerda, A. A. Reference Model of Reverse Logistics Process for Improving Sustainability in the Supply Chain. Sustainability 2021, 13. https://doi.org/10.3390/ su131810383.

3.2.4. Banihashemi T.A., Fei, J., Chen P.S.-L. Exploring the relationship between reverse logistics and sustainability performance. Mod. Supply Chain Res. Appl. 2019, 1, 2–27.

3.2.5. Taleizadeh A.A., Haghighi F., Niaki S.T.A. Modeling and solving a sustainable closed loop supply chain problem with pricing decisions and discounts on returned products. J. Clean. Prod. 2019, 207, 163–181.

Additional literature:

3.2.6. Kuzmenko A.I., Komarov E.D. Modeling of freight automobile transportation on the basis of reverse logistics // Transport systems and transportation technologies. 2017. No. 14. URL: https://cyberleninka.ru/article/n/modelyuvannya-vantazhnih-avtomobilnih-perevezen-na-pidstavi-reversivnoyi-logistiki.

3.2.7. Koberg, E.; Longoni, A. A systematic review of sustainable supply chain management in global supply chains. J. Clean. Prod. 2019, 207, 1084–1098.

3.2.8. Agrawal, S. Singh, R.K. Analyzing disposition decisions for sustainable reverse logistics: Triple Bottom Line approach. Resour. Conserv. Recycl. 2019, 150, 104–148.

3.2.9. Marchuk V.Ye., Savchenko L.V., Harmash O.M. Management of reverse logistics in the supply chain system. Intellectualization of logistics and supply chain management. [Online], 2021. vol.7(8), pp.36-46 https://doi.org/10.46783/smart-scm/2021-7(8)-3.

3.3. Internet resource

3.3.1. Sample Return Policy for Ecommerce Stores. [Electronic resource]. – Access mode: https://www.termsfeed.com/blog/sample-return-policy-ecommerce-stores/ – Title from screen.

3.3.2. How the surge in e-commerce is shaping the reverse logistics industry around the world. Commercial real estate. 2019-06-14. [Electronic resource]. – Access mode: https://cushmanwakefield.com.ua/index.php/uk/yak-splesk-elektronnoi-komercii-formue-galuz-reversivnoi-logistiki-po-vsomu-svitu

3.3.3. E-commerce: what are the logistics challenges of tomorrow? 2018 study. [Electronic resource]. – Access mode: https://www.colliers.com/en-fi/news/20190213-e-commerce-what-are-the-logistics-challenges-of-tomorrow

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**
1 semester	
Module 1 « Software products and technologies for solving logistics problems »	
Carrying out practical tasks and analysis of cases	81 (summary) (9×9 g.)
For carrying out module test №1, a student must receive not less than	*48*
Carrying out Module Test №1	19
Total by the Module №1	**100**
Total by the subject	**100**

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.

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 Graded Test Grade is converted into a grade on the national scale and the ECTS scale.

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
	Усе 20	19.01.23	Шишкіна		

(Ф 03.02 – 02)

АРКУШ ОЗНАЙОМЛЕННЯ З ДОКУМЕНТОМ

№ пор.	Прізвище ім'я по-батькові	Підпис ознайомленої особи	Дата ознайом-лення	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

№ змін и	№ листа (сторінки)				Підпис особи, яка внесла зміну	Дата внесення зміни	Дата введення зміни
	Зміненого	Заміненого	Нового	Анульо-ваного			

(Ф 03.02 – 32)

УЗГОДЖЕННЯ ЗМІН

	Підпис	Ініціали, прізвище	Посада	Дата
Розробник				

Узгоджено				
Узгоджено				
Узгоджено				