

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ  
ІМЕНІ СЕМЕНА КУЗНЕЦЯ

"ЗАТВЕРДЖУЮ"  
Проректор з навчально-методичної роботи



Каріна НЕМАШКАЛО

**ЛОГІСТИКА**  
робоча програма навчальної дисципліни

Галузь знань 07 "Управління та адміністрування"  
Спеціальність 073 "Менеджмент"  
Освітній рівень перший (бакалаврський)  
Освітня програма "Логістика"

Статус дисципліни обов'язкова  
Мова викладання, навчання та оцінювання англійська

Завідувач кафедри  
менеджменту,  
логістики та інновацій




Олена ЯСТРЕМСЬКА

Харків  
2022

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

"APPROVE"  
Vice-rector for educational and methodical work



Karina NEMASHKALO

**LOGISTICS**  
work program of the academic discipline

Branch of knowledge 07 "Management and administration"  
Specialty 073 "Management"  
Educational level first (bachelor's)  
Educational program Logistics

Discipline status **mandatory**  
Language of teaching, learning and assessment **english**

Head of Department  
of management,  
logistics and innovation



Olena IASTREMSKA

Kharkiv  
2022

APPROVED

at the meeting of the Department of Management, Logistics and Innovation  
Protocol No. 1 dated August 25, 2022

Developer:

Kolodzieva T.O., PhD in Economics, Associate Professor.

**Renewal and Re-Approval Letter  
work program of the academic discipline**

Academic year	The date of the meeting of the department - developer of WPED	Protocol number	Signature of the head of the department

### Abstract of the academic discipline

Logistics is a key to modern economy. Almost every organization faces the problem of getting the right materials to the right place at the right time. Increasingly competitive markets are making it imperative to manage logistics systems more and more effectively.

The purpose of the discipline is: formation of modern theoretical knowledge and practical skills for using principles and techniques of logistics in the general system of management of the company.

To achieve the goal set there are the following targets:

acquisition of deep theoretical knowledge on concepts, strategies and tactics of logistics;

mastering of the methodological tools of development and implementation of the tasks of logistics;

mastering the skills of logistics thinking and developing proposals for

improving logistics systems and their operation;

learning the characteristics of formation and developing knowledge of the enterprise personnel in the logistics flow management;

acquisition skills assessing the economic impact of the logistics solutions implementation.

The subject of the discipline "Logistics" is the general patterns of development of logistics systems, characteristics and trends in management and optimization of material flow.

The object of the discipline is the planning, control and management of transportation, warehousing, storage and other operations, inventory logistics, streamlining of commodity circulation, the economic efficiency of logistics.

### Characteristics of the academic discipline

Course	2
Semester	4
Number of ECTS credits	5
Final control form	Exam

### Structural and logical scheme of studying an academic discipline

Prerequisites	Post-requisites
Management	Logistics service
Commodity market infrastructure, commodity science	Functional logistics
	International logistics

### Competencies and learning outcomes by discipline

Competences	Learning outcomes
SC1. Ability to identify and describe characteristics organizations	LR5. Describe the content of the functional areas of the organization.
SC2. The ability to analyze the results of the organization's activities, compare them with factors of external and internal influence environment	LR 7. Demonstrate organizational design skills.
SC4. The ability to determine the functional areas of the organization and connections between them.	

<p>SC16. Ability to form a complex program increasing the competitiveness of the company on the national and international markets from the point of view logistics as a new paradigm of entrepreneurial activity.</p>	<p>LR 18. Use the principles and methods of logistics in general to the enterprise management system for cost reduction and optimization logistics flows and processes of organizations.</p>
<p>GC5. Knowledge and understanding of the subject area and understanding of professional activity.</p>	<p>LR19. To apply a logistic approach to the management of organizations' resources and to ensure an increase in their competitiveness. Demonstrate the skills of optimizing the organizational and technological aspects of the main functions of logistics using communication and information support.</p>
<p>SC17. The ability to carry out organizational, technological, technical and information support of basic functions logistics Ability to manage logistics activities of enterprises in the spheres of production, stocks, warehousing, procurement, sales, transportation and freight processing</p>	
<p>GC5. Knowledge and understanding of the subject area and understanding of professional activity.</p>	<p>LR 22. The ability to apply the optimization factor in the delivery of goods in international communication, to choose the optimal mode of transport in international communication. Analyze international agreements, analyze risks in international logistics.</p>
<p>SC 20. The ability to effectively analyze and integrate the logistics concept into international activity, to analyze the conceptual bases and define the main categories of international logistics, to apply the optimization factor in the delivery of goods in international communication. The ability to choose the optimal mode of transport in international communication, to make effective decisions in the process of international logistics activity .</p>	

### **Program of educational discipline**

#### **Content module 1**

#### **Conceptual fundamentals of logistics**

##### **Theme 1. Logistics – an instrument of the market economy**

The concept, essence and tasks of logistics. Preconditions, causes and stages of the logistics development. The modern definition of logistics as a science of management of flow processes. Basic concepts of logistics. Levels of formation of logistics. Comparative analysis of traditional and logistic concepts of management of an enterprise. The experience of foreign countries in the application of logistics. Logistics as a factor of improving competitiveness of an enterprise.

##### **Theme 2. The concept and methodology of the integrated logistics**

The principles of modern logistics concepts. The basic characteristics of the concept of logistics. The basic rules of logistics. Framework for the integration of logistics. Integration of internal and external material flow. The system approach as a methodological base of logistics. Logistics as a sphere of competence, which connects the company with its customers and suppliers and contributes to increasing competitiveness.

Logistics systems and principles of their formation. The properties of the logistics systems. Classification of logistic systems. Links of logistics systems. Logistics network.

### **Theme 3. The objects of the logistics management and logistics operations**

Objects of logistics management and logistics activities. Characteristics of flow processes in logistics. The concept of material flow and the parameters that characterize it. Classification of material flow. Information flows and their classification. Financial flows and their classification. Service flows and their characteristics. General schemes of interaction of flows. Logistics operations with material, information, financial and service flows. Criteria for optimal control of flows. Integrated logistics flows.

### **Theme 4. Logistics activity and logistics functions**

Logistic processes and logistics activities. Key logistics activities: customer service, forecasting, inventory management, material handling, logistics communications, order processing, packaging, procurement. Parts and service support, plant and warehouse site selection, transportation, warehousing and storage, reverse logistics. Organizing logistics activities. The basic logistics functions and their allocation between various participants of the logistic process. Infrastructure of logistic processes.

### **Theme 5. Logistics management in the general management**

Definition and role of logistics management. Logistics mission and logistics environment of the firm. Types of decisions. The relationship between mission, corporate strategy and logistics strategy. Types of logistics strategies. Logistics and strategic planning. The essence and components of strategic plan. Developing strategic logistics plan. Tools of strategic decision making. The concept of a supply chain. Connectivity of logistics with the main functional areas of business. Types of the organizational structures of logistics management.

## **Content module 2. Functional-basic division of logistics**

### **Theme 6. Logistics approach to management of material flows in manufacturing**

The traditional and logistics concepts of production. Goals, objectives and functions of production logistics. Intra-manufacturing logistics systems: their characteristics and comparative analysis. Push and pull systems of material flows management in production logistics. Organizing supply of material resources and inventory management in micro-manufacturing logistics systems.

### **Theme 7. Logistics approach to management of material flows in circulation**

Organizing distribution of materials and finished products. Distribution, the main functions. Logistics channels and logistics chains. The internal structure and functioning of distribution channels. Choice of distribution channels. Types and features of the distribution channels. Logistics intermediaries in the distribution, their classification and function. Designing distribution systems. Systems of planning of the material resources in the distribution channels.

### **Theme 8. Logistics approach to customer service**

The concept of logistics services. Provision of customer services as a means of improving the competitiveness of participants of logistic system. Classification of service. Developing a policy for customer service. The technology of work with clients. Technological scheme of the order processing. Indicators of a customer service level and methods of their evaluation. Modeling and optimization of customer service level. The opportunities for improving a customer service performance.

### **Theme 9. Warehouse and transportation in logistics**

The role of warehouses in the production and distribution of the products. Modern trends of the warehouse network. Warehouse as an integrated part in the logistics chain. Types and functions of warehouses in the logistics system. The main problems of warehousing of material resources in the logistics. The choice between private and public warehouses. Warehousing operations. Determination of the number and location of the warehouse networks. The choice of storage. Providing the unity of the storage and transportation processes. Transport modes and their characteristics. Logistics estimation of transport. Transportation costs and tariffs, the order of their application.

### **Theme 10. Economic support of logistics**

The structure and scope of logistics costs. The impact of logistics costs in the market value of the products. Increased efficiency of the products and services through the management of logistics costs. The concept of minimizing total costs. Logistics as the factor of improving financial sustainability and competitiveness of an enterprise.

The list of practical (seminar)/laboratory classes, as well as questions and tasks for independent work, is given in the table "Rating plan of the educational discipline".

### **Teaching and learning methods**

In the process of teaching the educational discipline "Logistics" for the implementation of the defined competencies of the educational program and the activation of the educational process in lectures/laboratory /practical classes, the use of such teaching methods as: mini-lectures (Theme 8), group work (Theme 6), case technologies (Theme 10), seminars-discussions (Theme 2), business game (Theme 9), situational tasks (Themes 7).

During lectures and laboratory classes, the following teaching methods are used: explanatory and illustrative, reproductive, problem-based teaching, partially research-based, research teaching methods.

### **The procedure for evaluating learning outcomes**

Simon Kuznets Kharkiv National University of Economics uses a cumulative (100-point) system assessment Current control, which is carried out during the II semesters during conducting lectures and practical classes and is evaluated by the sum of points scored (the maximum amount is 60 points; the minimum amount that allows the acquirer pass the exam, - 35 points).

The procedure for the **current evaluation of the** knowledge of the applicants takes place during lecture, practical and laboratory classes .

Lectures: control of students' knowledge of learning the lecture material is carried out during the semester during a frontal survey, which is held twice a semester, each grade is worth 5 points, a total of 10 points.

Practical and laboratory classes: homework completion is estimated at 5 points, the number of homework assignments – 3 times during the semester, total 15 points. Writing a colloquium (20 points) and two current test papers (which consist of test tasks for each topic and are evaluated for 5 points each) will allow you to get 30 points. Writing a research paper is evaluated in 5 points. Total number of points for practical classes is 50 points.

Independent work includes searching, selecting and reviewing literary sources according to the given Theme, preparations for practical, laboratory classes, control tests, homework and research work. The results of independent work are checked and evaluated during classroom ongoing control - oral surveys, reports and written works.

Final control of students' knowledge and competences in the educational field discipline is carried out on the basis of a semester exam, the task of which is to check the student's understanding of the

program material in overall, logic and relationships between separate sections. During the final semester control in the form of an exam, the number of of points in the academic discipline is a maximum of 40 points, a minimum of 25 points. The minimum possible number of points for the current and final control during the semester - 60 points, maximum - 100 points. The education seeker should be considered certified if the sum of points, obtained according to the results of the final/semester performance tests, is equal to or greater than 60. Total result in points for the semester is: "60 or more points - passed", "59 and less points - not passed" and entered in the examination sheet "Record of success" of the academic discipline.

Forms of assessment and distribution of points are given in the table "Rating plan of educational discipline".

### **Sample examination paper**

Semyon Kuznets Kharkiv National University of Economics

Education level "bachelor"

Educational program: Logistics. Semester 4

Educational discipline "Logistics"

**EXAMINATION PAPER No. 1**

#### **Tests**

1. An individual or a business concern, who is involved in the activities of buying goods for their account and then selling it off from their stock is known as:

- A) Broker
- B) Dealer
- C) Agent
- B) Distributor

2. What are the Functions of Transportation?

- A) Product Movement
- B) Product Storage
- C) Answers A) and B) are correct.
- D) There are no right answers

3. Which of the following is a benefit of using MRP?

- A) Better inventory planning and scheduling
- B) Changes may be completed using a variety of methods
- C) High tolerance for errors within the transaction information
- D) Higher inventory levels without increased holding costs

4. Number of levels of intermediaries (how many companies handle the product) is:

- A) Length of Supply Chain
- B) Width of Supply Chain

5. Formation of all types of support (infrastructure development) for the movement of flows in specific conditions. This principle of modern logistics concept is named:

- A) Specificity;
- B) Constructiveness;
- C) Reliability;
- D) Complexity.

6. What flows are of greatest interest for the logistics of the economic sphere?

- A) material, transport, energy;



- B) energy, money, information;
- C) material, information and financial;
- D) information, human, military.

7. The dimension of the material flow is a fraction, in the numerator of which the unit of measurement of the:

- A) time;
- B) cargo;
- C) distance;
- D) no right answers.

**Task 1 (diagnostic)**

The car made four rides a day. Initial data (number of ride - mileage with cargo, km - idling mileage, km): 1-25-15; 2-30-25; 3-30-25; 4-60-35. Zero mileage: the first – 15 km, the second - 15km. It is necessary to determine: the total mileage of the car per day, the utilization rate of the car mileage per day and for each ride.

**Task 2 (diagnostic)**

Limited Liability Company "Budstar" produces scraping machines; the annual demand for MB-3 components for scraping machines is 3600 pcs. The manufacturer of the MV-3 component sells it at a price of UAH 100 for a unit. The cost of submitting an order unit is 250 UAH. The logistics department knows that the cost of storing a component in a warehouse is 15% of its price. Taking into account these conditions, it is necessary to give recommendations for the purchase of this product and indicate which model or algorithm can be used to optimize the purchasing process in this situation.

**Task 3 (heuristic)**

Calculate the parameters of the Fixed Period Inventory System, if the annual demand of the wholesale store "Radekhivbud" in cement is 24,000 tons, the number of working days per year - 226, the economic order quantity - 1900 tons, lead time - 10 days, possible delay of delivery - 2 days.

No	Indicator Values	Values
1	Demand in Cement per year, tons	
2	Time Between Orders, days	
3	Lead Time, days	
4	Possible Delivery Delay, days	
5	Demand Rate, tons /day.	
6	Lead Time Demand, tons	
7	Maximum Demand during Lead Time, tons	
8	Safety Stock, tons	
9	Maximum Inventory, tons	
10	Order Size, tons	

Provide a graphical interpretation

Approved at the meeting

department of management, logistics  
and innovation of S. Kuznets KhNUE  
Protocol No. \_\_\_ of " \_\_\_ " \_\_\_\_\_ 20 \_\_\_ year.  
Chief department \_\_\_\_\_ Examiner \_\_\_\_\_.

**Final marks for the exam** consist of the sum of the marks for the completion of all tasks, rounded to a whole number according to the rules of mathematics.

The algorithm for solving each task includes separate stages that differ in complexity, time-consumingness, and importance for solving the task. Therefore, individual tasks and stages of their solution are evaluated separated from each other in this way.

The examination paper contains two parts:

test tasks;

practical tasks.

The test tasks contain seven tests of different types. The total score of the test tasks is 14 points, 2 points for each correct answer.

Practical tasks contain tasks of different types of complexity, namely: one diagnostic, one heuristic, the total score of which is 26 points. Each practical task is evaluated with a certain number of points, namely:

task 1 (diagnostic) – 7 points in;

task 2 (diagnostic) – 8 points in;

task 3 (heuristic) – 11 points in.

Each of the tasks is evaluated according to the evaluation criteria listed in the table.

### **Evaluation criteria for practical tasks**

**The task 1** (diagnostic) is assessed as follows:

7 points, in the case of the exact use of the scientific terminology and symbols in the necessary logical sequence; a creative approach to solving original problems which require a high level of knowledge;

6 points, in the case of the exact use of the mathematical terminology and symbols; irreproachable mastery of mathematical tools; correct use of mathematical methods, facts, formulas and relations for solving the task;

5 points, if a logically right sequence of steps of solution has been made.

All the key moments of the solution have been grounded. 1 – 2 slight mistakes or slips are possible in the calculations which don't influence the correctness of the further solution;

4 points, if mastery of a small part of obligatory skills and attainments required by the syllabus of the academic discipline has been demonstrated in solving the tasks; the conclusions, reproduction of the syllabus material of the discipline has not always been shown;

3 points, if the task has been solved only partially with initial right considerations, but there are mistakes which considerably influenced the process of the right solution of the task;

2 points, if the task fulfillment has been begun, there are separate correct considerations, but a logical mistake has been made which resulted in an incorrect solution.

1 point, if the condition has been written;

0 point, if no task has been fulfilled.

**The task 2** (diagnostic) is assessed as follows:

8 points, if solving the assigned tasks is characterized by a creative use of the theoretical instrument, logical correctness, precision, explanation of conclusions, rationality or using original approaches to solving the tasks;

7 points, if perfect mastery of the skill in the use of mathematical tools with application of information from other educational courses and disciplines has been demonstrated; one slight mistake has been made; a high level of standards of carrying out the tasks has been shown;

6 points, if a logically right sequence of steps of solution has been chosen. All the key points of solution have been grounded. 1 – 2 slight mistakes or slips are possible in the calculations which don't influence the correctness of the further solution;

5 points, in the case of correct using the terminology of the discipline and the basic methods for solving standard problems; showing the ability to use theoretical knowledge for solving standard (multistep) problems, some mistakes or deficiencies on the calculating stage of presentation of the solution; the ability to conclude;

4 points, in the case of more than one mistake and one or two deficiencies in the calculations, graphs, the choice of the method of solution, which have caused a wrong final result in some cases;

3 points, if the task fulfillment has been begun, there are separate correct considerations, but a logical mistake has been made which resulted in an incorrect solution;

2 points, if numerical gross mistakes have been made in the process of using the concepts of the discipline in the formulas which prove the absence of a minimum necessary part of the compulsory skills and the practical attainments provided for the discipline syllabus;

1 point, if no task fulfillment has been begun, but the condition has been written;

0 point, if no task fulfillment has been begun.

**The task 3** (heuristic) is assessed as follows:

11 points, if the ability for scientific investigative developments on the problems of the discipline has been shown; perfect skills in the use of mathematical tools and modern scientific theoretical approaches, a high level of standards of carrying out tasks have been demonstrated;

10 points, in the case of using scientific terminology and symbols in the necessary logical sequence; solving the assigned tasks characterized by precision, explanation; a creative approach; rationality of the choice of the method of solution; correct necessary calculations and transformations;

9 points, if systematic, deep and full knowledge of all the parts of the academic discipline and the basic questions which go beyond the discipline has been shown; a high level of standards of carrying out the tasks has been demonstrated;

8 points, in the case of sporadic slight deficiencies which don't influence the final result; correct use of mathematical methods, facts, formulas and relations for solving the task of different level of complexity;

7 points, if the ability to conclude and compare the theoretical and practical material has been demonstrated; correct (but not always rational) use of mathematical methods of solution, facts, formulas and relations has been shown;

6 points, if half of the tasks have been done, the interpretation of the obtained results is unavailable; the level of the standards of carrying out tasks is acceptable;

5 points, if the tasks have been carried out without any logical relationship of the mathematical concepts and practical solutions have not been given sufficient theoretical explanation;

4 points, if an acceptable volume of knowledge has been shown within the educational standard; the use of mathematical symbols and terminology has been insufficient and inexact, the knowledge of the basic formulas and concepts on the discipline has not been demonstrated;

2–3 points, in the case of solving the tasks with the theoretical material used only on the level of concepts; the inability to understand the connection of the theoretical material with the practical tasks;

1 point, if the condition has been written;

0 point, if no task fulfillment has been begun.

### Rating-plan of the educational discipline

Theme	Forms and types of education	Forms assessment	Max mark
1	2	3	4
<b>Content module 1 Conceptual fundamentals of logistics</b>			
THEME 1. Logistics – an instrument of the market economy	<i>Auditory work</i>		
	Lecture 1 by questions: 1. The essence and problems of logistics. 2. Evolution of logistics. 3. Levels of the logistics formation.	Active work	
	Practical lesson 1. The impact of logistics on the performance of the enterprise	Performing practical task	
	<i>Individual work</i>		
	Studying the lecture material, preparing for the practical lesson		
THEME 2. The concept and methodology of the integrated logistics	<i>Auditory work</i>		
	Lecture 2 on the following questions: 1. The principles of modern logistics concepts. 2. The systems approach as a methodological base of logistics. 3. Logistics systems. 4. Logistics network.	Active work	
	Laboratory work 1. Differentiation of the range of stocks by the method of ABC analysis. Differentiation of the range of stocks by the method of XYZ-analysis	Performing laboratory work	
	<i>Individual work</i>		
	Studying the lecture material, preparing for the laboratory work		
THEME 3. The objects of the logistics management and logistics operations	<i>Auditory work</i>		
	Lecture 3 by questions: 1. Objects of logistics management and logistics activities 2. Flows in logistics 3. Logistics operations with material, information, financial and service flows.	Active work	
	Practical lesson 2. Characteristics of logistics flows. Determining the optimal order size.	Performing a practical task	
	<i>Individual work</i>		
	Study of lecture material, preparation for practical classes		

THEME 4. Logistics activity and logistics functions	<i>Auditory work</i>		
	Lecture 4 by questions: 1. Logistic processes and logistics activities. 2. The basic logistics functions	Active work, frontal survey	
	Laboratory work 2. Choice of suppliers	Performing a laboratory work.Home-work check.	5
	<i>Individual work</i>		
	Study of lecture material, preparation for laboratory work		5
THEME 5. Logistics management in the general management	<i>Auditory work</i>		
	Lecture 5. by questions: 1. Definition and role of logistics management. 2. The nature and necessity of logistics strategy. 3. Strategic decisions in logistics. Strategic logistics plan. 4. The concept of a supply chain. 5. Logistics organizational structures.	Active work	
	Practical lesson 3. Current control work	Performance of laboratory work, current control work	5
	<i>Individual work</i>		
	Study of lecture material, preparation for laboratory and practical classes		
<b>Content modules 2. Functional-basic division of logistics</b>			
THEME 6. Logistics approach to management of material flows in manufacturing	<i>Auditory work</i>		
	Lecture 6,7 by questions:1. Goals and ways of implementing a logistic approach in the management of material flows in production. 2. Production logistics and the laws of organizing highly efficient, rhythmic production processes. 3. Inventory concepts. 4. Inventory management models.	Active work	
	Laboratory work 3. Planning of material needs in the MRP-1 system Practical lesson 4. Inventory management systems.	Performing laboratory work, practical task	
	<i>Individual work</i>		
	Studying the lecture material, preparing for the laboratory work, practical classes		
THEME 7.	<i>Auditory work</i>		

Logistics approach to management of material flows in circulation	Lecture 8 by questions: 1. Distribution logistics and its objectives. 2. The network design problems. 3. Channels of distribution. 4. Logistics intermediaries in the distribution.	Active work	
	Laboratory work No. 4. Defining the boundaries of the market	Performing a laboratory work. Home-work check.	5
	<b><i>Individual work</i></b>		
	Study of lecture material, preparation for laboratory work		
THEME 8. Logistics approach to customer service	<b><i>Auditory work</i></b>		
	Lecture 9 by questions: 1. The concept of logistics services. The principles and tasks of logistics services. 2. Elements of customer service. 3. The technology of work with clients. 4. Customer service performance.	Active work, frontal survey	
	Practical lesson 5. Determination of the level of logistics service	Performing practical task	
	<b><i>Individual work</i></b>		
	Study of lecture material, preparation for practical classes		5
Theme 9. Warehouse and transportation in logistics	<b><i>Auditory work</i></b>		
	Lecture 10, 11 by questions: 1. Nature and importance of warehousing. 2. Warehouse location and facility development. 3. The essence and tasks of transport logistics. 4. Transport modes and their characteristics. 5. Transportation costs and tariffs.	Active work	
	Laboratory work No. 5. Determining the location of the distribution center. Practical lesson 6. Determination of transport performance indicators	Performing a practical task, laboratory work. Homework check.	5
	<b><i>Individual work</i></b>		
	Study of lecture material, preparation for laboratory work		
THEME 10. Economic support of logistics	<b><i>Auditory work</i></b>		
	Lecture 12 by questions: 1. The structure and scope of logistics costs. 2. Methods for evaluating logistics costs and ways of their optimization.	Active work	
	Laboratory work No. 6. Protection of research work. Current control work. Colloquia	Performing a colloquia	20
		Performing a current control work	5

		Protection of research work	5
	<i>Individual work</i>		
	Study of lecture material, preparation for current control work, colloquia, protection of research work		
Exam			40

## Recommended References

### Main

1. Bowersox, D.J., 2013. Supply Chain Logistics Management / Bowersox, D.J., D.J. Closs, M.B. Cooper, and J.C. Bowersox. 4th ed. New York, NY: McGraw-Hill, 2013. – 678 p.
2. John J. Supply Chain Management: A Logistics Perspective/John J. Coyle Jr. Langley C. John Robert A. Novack Brian J. Gibson. – Cengage Learning 20, Channel Center Street Boston, MA02210 USA, 2016. – 639 p.
3. Kachru U. Logistics and Supply Chain Management /Upendra Kachru – Produced & Printed by Excel Books Private Limited A-45, Naraina, Phase-I, New Delhi-110028 for Lovely Professional University Phagwara, 2013. – 337 p.

### Ancillary

4. Professional English. Logistics: навч. посіб. / О. М. Акмалдінова, З. Ю. Мазуренко, Л. В. Кучерява, І. С. Козелецька. – К. : НАУ, 2015. – 416 с.
5. Rushton, A. The handbook of logistics and distribution management: understanding the supply chain / Alan Rushton, Phil Croucher, Peter Baker. Revised edition of The handbook of logistics & distribution management, 5th ed., London , 2014. – 690 p.

### Internet References

12. <http://ula-online.org/ua/> ULA Ukrainian Logistics Alliance
13. <http://www.elalog.eu/> ELA, the European Logistics Association
14. <https://pns.hneu.edu.ua/course/view.php?id=4680>  
(site PNS S. Kuznets KhNUE, discipline “Logistics”)