МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ ІМЕНІ СЕМЕНА КУЗНЕЦЯ

"ЗАТВЕРДЖУЮ"
Проректор з навчально-методичної роботи

Каріна НЕМАШКАЛО

ФУНКЦІОНАЛЬНА 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

FUNCTIONAL 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:
Kolodizieva 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

The educational discipline "Functional logistics" is aimed at students' assimilation of fundamental knowledge on optimization and management of the main logistics functions and phases of material flow moving - transportation, warehousing, cargo processing, stock formation, information support, supply, production and sales.

The purpose of the study discipline "Functional logistics" is to provide students with detailed study of the basic functions of logistics, mastering theoretical knowledge and practical skills of organizational, technological, technical and information support of the basic functions of logistics.

The tasks of the academic discipline are:

carry out operational and current management of individual links of logistics chains and the performance of individual logistics functions, using knowledge of functional areas of logistics;

to systematically connect the procurement of material resources with the production and sale of finished products, the formation of stockpiles of goods and material values, storage, transportation, cargo processing and information support, using the principles of logistics.

The subject of the educational discipline is the general principles and regularities of management of information provision, stocks, storage, transport, cargo processing, supply, production, sales.

Characteristics of the academic discipline

Course	3
Semester	5, 6
Number of ECTS credits	10
Final control form	Exam

Structural and logical scheme of studying an academic discipline

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

Competencies and learning outcomes by discipline

Competences	Learning outcomes
GC5. Knowledge and understanding of the subject area and understanding of professional activity.	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 .
SC 16. The ability to form a comprehensive program to increase the company's competitiveness on the national and international markets from the point of view logistics as a new paradigm of entrepreneurial activity.	
SC 17. The ability to carry out organizational, technological, technical and information support of the basic functions of logistics. The ability to manage the logistics activities of enterprises in the areas of production, stocks, warehousing, procurement, sales, transportation and cargo processing.	

GC5. Knowledge and understanding of the subject area and understanding of professional activity.	
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 .	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.

Program of educational discipline

Content module 1
Logistics of materials handling

Theme 1. Logistics of materials handling. Materials handling in logistics networks
Basic principles of materials handling. Materials handling in logistics networks. Mechanized cargo handling systems in the warehouse and during transportation. Semi-automated and automated cargo handling systems. Efficiency of freight processing. Cargo unit as an element of logistics. The formation of a cargo unit, its role and characteristics.

Theme 2. Containerization
Containerization and consolidation of cargo. Consumer and industrial packaging. Protection against damage. Packaging materials. The role of containers and packaging in logistics chains. Product marking. Methodology for calculating transport party indicators.

Theme 3. Methods of identification and data storage in logistics management
Principles of organization of information flows in the logistics system. Production information support. Informational support for distribution. Logistic information and computer technologies. Information systems to support decision-making. Information security systems. Analysis of threats and information risks. Information security at the stages of collection, transmission and storage.

Theme 4. Information support of basic logistics elements: stocks and storage, transportation and forwarding, production, distribution
Trading enterprise management systems. Automated warehouse management systems. Control over the supply of goods in the warehouse. Automated transportation management systems. Simulation modeling systems.

Theme 5. Integrated information technologies in materials handling logistics
Electronic trade. Virtual business. Intellectual and analytical systems. Analysis of threats and information risks. Use of automated barcode identification technology in logistics. Protection of information at the stages of collection, transmission and storage. Peculiarities of construction of logistic information systems. Information technologies in logistics.

Content module 2
Transport logistics

Theme 6. The essence of transport logistics
Functions and principles of transportation. Prerequisites and choice of vehicles. Means of transport. Ranking of modes of transport. Classification of intra-production transport systems with distinctive features.

Theme 7. Transportation technology
Providers of transport services. Goods delivery systems: unimodal, multimodal, intermodal, terminal. Planning and organization of transportation. Choosing the optimal mode of transportation. Cargo distribution center. New logistics systems of cargo collection and distribution. Choosing the best carrier. The level of transportation tariffs. Determining the need for warehouse transport and lifting equipment.

Theme 8. Analysis of the transport process efficiency
Economic expediency of delivering goods by various modes of transport. Calculation of the optimal ratio of rented and own transport. Calculation of transport costs. Evaluation of the efficiency of investment in the project of the warehouse lifting and transport equipment system.

Theme 9. Transportation routing
Information support of transportation. Automated transportation tracking systems. Planning of collection and delivery routes. Analysis of requirements proposed by customers to the cargo delivery system.

Theme 10. Cargo insurance and carriers liability
The concept of cargo insurance and its specifics. Groups of risks during cargo insurance and the procedure for managing them. Transfer of risks of loss and damage of cargo from the seller to the buyer under various conditions of cargo delivery, in accordance with Incoterms 2020. Legal security of transportation. The process of designing a cargo delivery system.

Theme 11. The role and importance of freight forwarding
Functions of the freight forwarding. Rules of cargo transportation. Forwarding service. Logistics model of forwarding. Goods and transport documentation. Normative documents regulating the procedure for receiving goods. Document flow scheme of the composition of wholesale trade enterprises.

Content module 3
Production logistics

Theme 12. Production logistics and the effectiveness of the application of the logistics approach to the management of material flows in production
Goals and ways of implementing a logistic approach in the management of material flows in production. Logistical approach to the management of material flows in production. Requirements for the organization and management of material flows in production. Production logistics and the laws of organizing highly efficient, rhythmic production processes. The law on the orderliness of promotion of labor items in production. The law of calendar synchronization of the duration of technological operations. The law of emergency of the main and auxiliary production processes.

The law on reservation of resources in production. The law of the rhythm of the production cycle of order fulfillment.

Theme 13. Material flow control systems in production: pushing and pulling
Two types of operating systems: pull and push. Features and schemes of operation of pulling and pushing systems. Operating systems and their varieties.
Systems "Kanban", MRP-1, MRP-2, MRP-3 ("Kanban"-MRP-2), OPT, LRP, KALS, LP, PRM, SRP.

Theme 14. Production organization and logistics
Logistical aspects of production planning (technical and economic planning). Planning the need for materials, logistics capacities, waste disposal. Organization of production processes. Management and regulation of the production process (operational calendar planning). Justification of the optimal level of specialization, optimal production technology, optimal size of the internal order (batch), optimal use of technological time.

Theme 15. Selection of production location
The place of micrologistics systems of industrial enterprises in macrologistics systems.
The place and role of micrologistics systems of industrial enterprises in macrologistics systems. Rating assessment of locations of industrial facilities.
The main and additional factors affecting the placement of industrial enterprises. Rating assessment of locations of industrial facilities.

Theme 16. The main production logistics indicators
Calculation of production indicators. Time spent on moving the flow of raw materials, materials and work in progress. Costs of logistics operations and their share in the cost of industrial products. The level of stocks of material resources, work in progress, containers and finished products. The speed of rotation of stocks of material resources in warehouses and in general in the enterprise. The degree of risk associated with storage and intra-plant transportation of material resources. The volume of losses of raw materials, materials, containers, work-in-progress and finished products.

Content module 4
Inventory logistics

Theme 17. Inventory in logistics
Inventory functions and inventory management principles. Inventory planning. Determination and calculation of inventory requirements. Justification of norms of production and commodity stocks. Mode of supply and volume of insurance stock. Required amount of production stock. The policy of inventory management in production and in the field of circulation. Features of management of production and commodity stocks.

Theme 18 . Optimal inventory management systems
Inventory management systems. Stock management system with fixed order size. Calculation of the optimal size of the supply batch and frequency of orders. Inventory management system with a fixed time interval between orders. Strategies for optimal inventory management. Inventory management optimization criterion. Optimal inventory management in case of deterministic and random demand. Inventory modeling. Risks of holding stocks. Stock inventory. Automated inventory management systems.

Content module 5
Warehouse logistics

Theme 19. Warehouse logistics
Purpose, tasks and functions of warehouse logistics. The role and place of the warehouse in the logistics system. Functions and types of warehouses. Warehouse planning. The main areas of warehouses and their characteristics. Calculation of the areas of the main warehouse areas. The main problems solved by warehouse logistics. Choice between own warehouse or public warehouse. Determination of the number of warehouses and the location of the warehouse network. Determination of the type, size and location of the warehouse. Selection of warehouse system and warehouse equipment. Development of a warehouse system. Technical and economic characteristics of the economic activity of the warehouse.

Theme 20. Logistics process in the warehouse
Technological schemes of warehouse processes. Schematic diagram of technological processing of goods. Designation and use of technological maps and daily work schedules in warehouses. Network planning of warehouse processes. Network planning and construction of network graphs.

Theme 21. Organization of warehouse processes with elements of logistics
A brief description of warehouse operations. Arrival of goods to the warehouse. Inbound control over the supply of goods in the warehouse. The task of determining the number of loading docks per warehouse. Advantages and disadvantages of combining loading and unloading docks. Determination of dimensional parameters of loading and unloading ramps. Placement of goods in the warehouse. Using the Pareto method (20/80) to make a decision on the placement of goods in the warehouse. Selection of the assortment according to the order of wholesale buyers. Shipment of goods from the warehouse.

Theme 22. Unit load as an element of logistics
Unit load as an element of logistics. The formation of a unit load, its role and characteristics. The size of the unit load. Technical support of warehouses. The role of containers and packaging in the organization of the logistics process in the warehouse. Automation of warehouse complex management.

Theme 23. Organization of document circulation in the warehouse
Warehouse document flow. Normative documents regulating the procedure for receiving goods. Document flow scheme of the composition of wholesale trade enterprises. Transfer of responsibility during acceptance of goods. Documents used for registration of acceptance of goods. Documents involved in the operations of placing goods for safekeeping. The question of transfer of responsibility.

Content module 6
Purchasing logistics

Theme 24. Material and technical support, system and form of supplies
The main stages of the material flow are supply, production, and sales. The fundamental difference between the logistic approach and the previous management of the movement of material resources. The form of the material flow existence. Material and technical support. A logistic approach to the organization of the material resources supply. Types of material resources. Variants of organization of supply. The difference between a logistic and a traditional approach to the organization of the supply of material resources. Efficiency of the supply service at the enterprise. Features of the

supply service at the enterprise. Efficiency of material and technical support. Organization of the supply system. Dependence of the supply organization on the type and size of the enterprise. Benefits of centralized procurement. Material and technical support. Features of material and technical support. The most important prerequisites for the special importance of procurement processes for the formation of the economy of enterprises. Transit form of supply. Features of the transit form of supply. The main advantages of the transit form of supply. Warehouse form. Features of the warehouse form of supply. The main purpose and advantages of the warehouse form of supply. Planning of material and technical support. Types of procurement planning for basic planning. Procurement planning process. Logistics systems focused on planning resource needs.

Theme 25. Purchasing activity

Purchasing activity: definition, purpose, main tasks. The essence and features of purchasing activity. Purpose and tasks of purchasing activity. Factors affecting purchasing activity. Factors affecting the consumer's purchase of material and technical resources. Classification of procurement types. Determination of material needs. Basic systems for determining material needs. Determination of needs based on orders. Planned identification of needs based on costs. Make or buy task. The essence of Make-or-Buy Problem (MOB) (task "make or buy"). Decisions in favor of production. Decisions in favor of procurement of component products.

Theme 26. Management of purchases and orders

Procurement management and order placement. The essence of order management. The logistics cycle of the order and its stages. Principles of placing orders. Trade functions regarding the attraction of potential consumers and the subsequent formation of orders. Determination of order volumes. Size of the order and available methods of its determination. Order forms. The duration of the order. Frequency of placing orders. Order fulfillment period. Costs per order. Documentation of orders and deliveries. Procurement organization. Basic procurement methods. Purchase of goods in one batch. Regular purchases in small batches. Daily (monthly) purchases based on quotation information. Receiving goods as needed. Purchase of goods with immediate delivery.

Theme 27. Selection of suppliers and organization of supply

Supplier selection. Importance of supplier selection. The main stages of supplier selection.
Criteria and methods of supplier selection. Basic and additional supplier selection criteria. Stages of studying potential suppliers and their capabilities. Information related to the activities of resource providers. Organization of interaction with the supplier. Integration of actions between the supplier and the enterprise. Improvement of relations with the supplier. Choice of terms of delivery. Supply control.

Theme 28. Technology of decision-making and documentation during the organization of purchases

Technology of decision-making during the organization of purchases and placement of orders. The main functions of the procurement process. Order placement efficiency. Technology and principles of contracting. The essence and types of contracts. The main elements of the contract and features of conclusion. Information support for order management. The importance of information support for order management. Sources of information collection.
Methodology for calculating supply and procurement indicators. Analysis of procurement processes. Management analysis of procurement processes. Organization of product delivery.
The main actions related to the organization of delivery. Choice of methods of delivery of materials.

Content module 7
Sales logistics

Theme 29. Sales policy of the enterprise
Sales management. Organization of the sales system. Ways of selling products. Sales policy of the enterprise. The sales policy of the enterprise - the manufacturer of products. The main elements of sales policy. The main functions of logistics in sales. Organization of wholesale trade. The essence of wholesale trade. The main tasks of wholesale trade. Peculiarities of the organization of wholesale trade.
Electronic trade. The essence of electronic commerce. The main tasks of e-commerce. Peculiarities of electronic trade organization. Retail. The essence of retail trade. The main tasks and functions of retail trade. Peculiarities of the organization of retail trade. Calculation of sales figures. Determination of the main sales indicators. Analysis of the main sales indicators.

Theme 30. The essence of distribution logistics
Purpose, tasks and functions of distribution logistics. The essence of distribution logistics. An integrated view of the distribution function. Composition of distribution logistics tasks at the micro- and macro-level. Logistics and marketing. Relationship of marketing and logistics. Common interests of marketing and logistics. Basic forms of organization of distribution logistics. Forms of organization of distribution logistics. Features of the resource distribution planning system - Distribution Resources Planning. The main systems of distribution of goods. Problems in the field of distribution. Distribution logistics. Choosing a distribution strategy.

Theme 31. Distribution channels in logistics
Wholesale and logistics intermediaries in the distribution system. Types and functions of logistics intermediaries in distribution channels. Internal structure and principles of functioning of distribution channels. The essence of sales channels. Peculiarities of distribution channel structures and principles of their functioning. Development of the distribution channel structure. Selection of distribution channels. Direct and indirect distribution channels. Peculiarities of developing the structure of sales channels. Formation of a distribution network. Distribution of goods. Methods of building a distribution network.

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 "Functional 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 7), group work (Theme 5), case technologies (Theme 26), seminars-discussions (Theme 16), business game (Theme 13), situational tasks (Themes 29, 30, 31).
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 5, 6 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 – 5 times during the semester, total 25 points. Writing a colloquium (10 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 20 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

Simon Kuznets Kharkiv National University of Economics
Education level "bachelor"
Specialty : 073 "Management"
EP “Logistics”. Semester 5
Educational discipline "Functional logistics"

EXAMINATION PAPER No. 1

Tests

1.A small industrial vehicle with a power-operated pronged platform that can be raised and lowered for insertion under a load to be lifted and moved
A) counter-balance forklift
B) pallet jack
C) forklift truck
D) turret truck
2. Safety feature that turns off a machine if the operator experiences a problem
A) outrigger
B) tire
C) dead man’s switch
D) throttle

3.Purchase and sale of supplies, work and services through the Internet and other information and networking systems
A) electronic purchasing
B) automatic identification technology
e) electronic data interchange (EDI)
4.Manufacturing system in which production is based on actual daily demand (sales), and where information flows from market to management in a direction opposite to that in traditional (push) systems
A) real-time system
B) warehouse management system (WMS)
C) pull system
D) distribution requirements planning (DRP)
5.Attack
A)A statement of an intention to injure, damage or any other enemy action.
B)A potential for violation of security.
C)An assault on system security
6.Commercial Invoice:
A)A bill of lading issued by a forwarder to a shipper as a receipt for goods that the forwarder will consolidate with cargo from other shippers for transport
B)A document created by the seller. It is an official document which is used to indicate, among other things seller, the product(s) being shipped, and their value for customs, insurance, or other purposes., the name and address of the buyer
C)A bill of lading for air transport that serves as a receipt for the shipper, indicates that the carrier has accepted the goods listed, obligates the carrier to carry the consignment to the airport of destination according to specified conditions.
7.This type of production strategy is used when demand can not rely on actual numbers but, instead, has to be forecasted
A)Push system
B)Pull system
C)Hybrid system

Task 1

The car with a capacity of 8 tons made three trips: for the first it transported (Q1) 8 tons for 40 km, for the second (Q2) - 7 tons for a distance of 25 km, for the third ride (Q3) - 5 tons for distance 35 km. Determine the static coefficient for each ride, static and dynamic coefficients per shift.

Task 2

Determine the feasibility of the industrial enterprise to purchase its own transport. The company has to supply products to many consumer organizations every month and cover about 3 000 km in a small truck. The company must decide whether to purchase a new vehicle or enter into an agreement with the transport company.

Table

Output data

Indicator	measure	indicator value
Payment for transport company services	UAH / km	12,50
Acquisition of a new vehicle	UAH	90200
Annual depreciation rate	%	20
The amount of borrowed funds when purchasing a new vehicle	%	40

The amount of monthly loan payments	%	4
Loan term	years	4
The amount of taxes and insurance	UAH / year	300
Remuneration of the driver	UAH / month	4800
Expenses for gasoline, maintenance and repair	UAH / km	2,85

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and innovations of S. Kuznets KNEU
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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) – 10 points in;

task 2 (heuristic) – 16 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:

10 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;

9-8 points, if perfect mastery of the skill in the use of metodogical tools with application of information from educational course has been demonstrated; one slight mistake has been made; a high level of standards of carrying out the tasks has been shown;

7-6 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 deficienies 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 2 (heuristic) is assessed as follows:
16 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;
15 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;
14-13 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;
12-11 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;
10-9 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;
8-7 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;
6-5 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
5 semester			
Content module 1. Logistics of materials handling			
THEME 1. Logistics of materials handling. Materials handling	***Auditory work***		
	Lecture 1 by questions: 1. Basic principles of materials handling. 2. Semi-automated and automated cargo handling systems. 3. Cargo unit.	Active work	

in logistics networks	Laboratory work 1. Mechanized materials handling systems in the warehouse and during transportation.	Performing laboratory work	
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 2. Containerization	***Auditory work***		
	Lecture 2 on the following questions: 1. Containerization and consolidation of cargo. 2. Packaging materials. 3. Methodology for calculating transport party indicators.	Active work	
	Laboratory work 2. Containerization of cargo.	Performing laboratory work	
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 3. Methods of identification and data storage in logistics management	***Auditory work***		
	Lecture 3 by questions: 1. Principles of organization of information flows in the logistics system. 2. Logistic information and computer technologies. 3. Information security systems.	Active work	
	Practical lesson 1. Features of building logistics information systems.	Performing a practical task	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 4. Information support of basic logistics elements: stocks and storage, transportation and forwarding, production, distribution	***Auditory work***		
	Lecture 4 by questions: 1. Trading enterprise management systems. 2. Automated warehouse management systems. 3. Automated transportation management systems.	Active work	
	Practical lesson 1. Principles of organization of information flows in the logistics system.	Performing a practical task	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 5. Integrated information technologies in materials handling	***Auditory work***		
	Lecture 5. by questions: 1. E-commerce.. 2. Analysis of threats and information risks. 3. Protection of information at the stages of collection, transmission and storage.	Active Work, frontal survey	

logistics	Laboratory work 3. Logistic information and computer technologies. Information technologies in logistics. Order processing. Laboratory work No. 4. Trading enterprise and automated warehouse management system Practical lesson No. 2. Automated warehouse management system. Automated transportation management systems. Practical lesson No. 3. Electronic trade. Analysis of threats and information risks.	Performance of laboratory work, practical training. Homework check.	5
	Individual work		
	Study of lecture material, preparation for laboratory and practical classes		5
Content module 2. Transport logistics			
THEME 6. The essence of transport logistics	***Auditory work***		
	Lecture 6 by questions:1. Functions and principles of transportation. 2. Means of transport.	Active work	
	Laboratory session No. 5. Transportation: functions and principles. Classification of types of transport. Choosing the optimal mode of transport.	Performing laboratory work	
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 7. Transportation technology	***Auditory work***		
	Lecture 6 (continued) by questions: 1. Providers of transport services. 2. Planning and organization of transportation. 3. Selection of the optimal carrier.	Active work	
	Laboratory lesson No. 6. Types of deliveries and technological schemes of transportation	Performing laboratory work	
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 8. Analysis of the transport process efficiency.	***Auditory work***		
	Lecture 6 (continued). by questions: 1. Economic expediency of delivering goods by various modes of transport. 2. Calculation of transport costs.	Active work	
	Practical lesson No. 4. Choosing the optimal mode of transportation. Choosing the best carrier. Tariffs for transportation. Practical lesson No. 5. Criteria for evaluating the efficiency of the transport process.	Performance of practical tasks	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 9 Transportation routing	***Auditory work***		
	Lecture 7 by questions:1. Information support of transportation. 2. Planning of collection and delivery routes.	Active work	

	Practical lesson No. 6. Calculation of technical and operational indicators of motor vehicles on routes	Performing a practical task. Homework check.	5
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 10. Cargo insurance and carriers liability	***Auditory work***		
	Lecture 7 (continued) by questions: 1. The concept of cargo insurance and its specifics. 2. Transfer of risks of loss and damage of goods from the seller to the buyer under different conditions of delivery of goods, in accordance with Incoterms 2020.	Active work	
	Current control work	Writing a test	5
	Individual work		
	Studying the lecture material, preparing for the test		
THEME 11. The role and importance of freight forwarding	***Auditory work***		
	Lecture 8 by questions: 1. Functions of the freight forwarding. 2. Forwarding service. 3. Goods and transport documentation.	Active work	
	Current control work	Writing a test	
	Individual work		
	Studying the lecture material, preparing for the test		
Content modules 3. Production logistics			
THEME 12. Production logistics and the effectiveness of the application of the logistics approach to the management of material flows in production	***Auditory work***		
	Lecture 9 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.	Active work	
	Laboratory work 7. Formation of production and supply schedules.	Performing laboratory work	
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 13. Material flow management systems in production: pushing and pulling	***Auditory work***		
	Lecture 10 by questions: 1. Two types of operating systems: pull and push. 2. Operating systems and their varieties.	Active work	
	Practical lesson No. 7. Solving organizational aspects of production logistics.	Performing a practical task	
	Individual work		

	Study of lecture material, preparation for practical classes		
THEME 14. Production organization and logistics	***Auditory work***		
	Lecture 10 (continuation) by questions: 1. Logistical aspects of production planning (technical and economic planning). 2. Organization of production processes.	Active work	
	Practical lesson No. 7. Solving organizational aspects of production logistics (continued).	Performing a practical task	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 15. Sellection of production location	***Auditory work***		
	Lecture 10 (continued) by questions:1. The place of micro-logistics systems of industrial enterprises in macro-logistics systems. 2. Rating assessment of locations of industrial facilities.	Active work	
	Practical lesson No. 7. Solving organizational aspects of production logistics (continued).	Performing a practical task	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 16. The main production logistics indicators	***Auditory work***		
	Lecture 10 (continued) by questions: 1. Calculation of production indicators. 2. The degree of risk associated with storage and intraplant transportation of material resources.	Active work	
	Practical lesson No. 7. Solving organizational aspects of production logistics (continued).	Performing a practical task	
	Individual work		
	Study of lecture material, preparation for practical classes		
Content modules 4. Inventory logistics			
THEME 17. Inventory in logistics.	***Auditory work***		
	Lecture 11 by questions: 1. Inventory functions and inventory management principles. 2. The policy of inventory management in production and in the field of circulation.	Active work	
	Laboratory session No. 8. Optimizing the inventory management system. Inventory rationing, inventory management systems in conditions of financial constraints and shortages.	Performing laboratory work. Homework check.	5
	Individual work		

	Studying the lecture material, preparing for the laboratory session		
THEME 18. Optimal inventory management systems	***Auditory work***		
	Lecture 11 (continued) by questions: 1. Inventory management systems.2. Strategies for optimal inventory management.	Active work	
	Laboratory session No. 8 (continued). Optimization of the inventory management system. Inventory rationing, inventory management systems in conditions of financial constraints and shortages.	Performing laboratory work. Homework check.	5
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
Content modules 5. Warehouse logistics			
THEME 19. Warehouse logistics.	***Auditory work***		
	Lecture 12 by questions: 1. Purpose, tasks and functions of warehousing logistics. 2. The main problems solved by warehouse logistics.	Active work	
	Practical lesson No. 8. Determination of warehouse indifference freight turnover, use of the Pareto method to make a decision on the placement of goods in the warehouse.	Performance of practical tasks.	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 20. Logistics process in the warehouse	***Auditory work***		
	Lecture 12 (continued) by questions: 1. Technological schemes of warehouse processes. 2. Network planning of warehouse processes.	Active work	
	Laboratory lesson No. 9. Warehouse planning.	Performing laboratory work. Homework check.	5
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 21. Organization of warehouse processes with elements of logistics.	***Auditory work***		
	Lecture 12 (continued) by questions: 1. Brief description of warehouse operations. 2. Placement of goods in the warehouse.	Active work	
	Presentation of research work.	Presentation of research work.	5
	Individual work		
	Study of lecture material, preparation for presentation of research work.		

THEME 22. Unit load as an element of logistics.	***Auditory work***		
	Lecture 12 (continued) by questions: 1. Unit load as an element of logistics. 2. Technical support of warehouses.	Active work	
	Current control work	Execution of current control work.	5
	Individual work		
	Studying the lecture material, preparing for the test		
THEME 23. Organization of document circulation in the warehouse	***Auditory work***		
	Lecture 12 (continued) by questions:1. Warehouse document flow. 2. Scheme of document circulation of the composition of wholesale trade enterprises.	Active Work, frontal survey	5
	Colloquium	Execution of the colloquium	10
	Individual work		
	Studying the lecture material, preparing for the colloquium		
Exam			40
6 semester			
Content module 6. Purchasing logistics			
THEME 24. Material and technical support, system and form of supplies .	***Auditory work***		
	Lecture 1 by questions: 1. The main stages of the material flow are supply, production, and sales. 2. Logistical approach to the organization of the supply of material resources.	Active work	
	Laboratory work 1. Determining the optimal order size.	Performing laboratory work	
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 25. Purchasing activity	***Auditory work***		
	Lecture 2 by questions: 1. Purchasing activity: definition, purpose, main tasks. 2. Factors affecting purchasing activity.. 3. Make or buy task. 4. Determination of material needs.	Active work	
	Laboratory work 2. Determination of the optimal procurement strategy	Performing laboratory work. Homework check.	5
	Individual work		
	Studying the lecture material, preparing for the laboratory session		

THEME 26. Management of purchases and orders	***Auditory work***		
	Lecture 3 by questions: 1. Procurement management and order placement. 2. Determining the volume of orders. 3. Order forms. 4. Procurement organization.	Active work	
	Practical lesson 1. The essence of Make-og-Vuu Rgoblem (MOV) ("make or buy" task).	Carrying out a practical lesson	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 27. Selection of suppliers and organization of supply.	***Auditory work***		
	Lecture 4 by questions: 1. Supplier selection. 2. Organization of interaction with the supplier. Lecture 5 by questions:1. Choice of delivery conditions. 2. Supply control.	Active work, frontal surveys	5
	Laboratory work 3. Evaluation of the supplier based on the results of the work in order to make a decision on the extension of the contractual relationship with them	Performing laboratory work. Homework check.	5
	Individual work		
	Studying the lecture material, preparing for the laboratory session		
THEME 28. Technology of decision-making and documentation during the organization of purchases	***Auditory work***		
	Lecture 6 by questions: 1. Decision-making technology during the organization of purchases and placing orders. 2. Technology and principles of contracting. Lecture 7 by questions: 1. Information support for order management. 2. Methodology for calculating supply and procurement indicators. Lecture 8 by questions: 1. Management analysis of procurement processes. 2. Organization of product delivery.	Active work	
	Practical lesson 2. Current control work.	Performing control work. Homework check.	10
	Individual work		
	Studying the lecture material, preparing for the test		
Content module 7. Sales logistics			
THEME 29. Sales policy of the enterprise	***Auditory work***		
	Lecture 9 by questions: 1. Sales management.2. Sales policy of the enterprise.	Active work	

	Practical lesson 3. Evaluation and selection of a distribution system	Carrying out a practical lesson	
	Individual work		
	Study of lecture material, preparation for practical classes		
THEME 30. The essence of distribution logistics.	***Auditory work***		
	Lecture 10 by questions: 1. Purpose, tasks and functions of distribution logistics. 2. Logistics and marketing.	Active work	
	Laboratory work 4. Determination of the location of the DC taking into account the economic criterion of optimization. Laboratory work 5. The method of complete enumeration. Laboratory work 6. The method of determining the center of gravity	Performing laboratory work, research work. Homework check.	10
	Individual work		
	Studying the lecture material, preparing for the laboratory session, performing research work		
THEME 31. Distribution channels in logistics	***Auditory work***		
	Lecture 11. on the question: Wholesale and logistics intermediaries in the distribution system. Lecture 12. on the question: Development of the structure of the distribution channel.	Active work, frontal surveys	
	Practical lesson 4. Determination of the location of the distribution warehouse on the territory of one of the objects of the distribution network. Practical session 5. Current control work. Practical lesson 6. Colloquium	Performance of practical tasks, current control work, colloquium. Homework check.	20
	Individual work		
	Studying the lecture material, preparing for a practical lesson, a current test, a colloquium.		5
Exam			40

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