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SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

Guidelines to comprehensive professional training

for Bachelor's (first) degree higher education students of speciality 073 "Management" of the educational program "Logistics"

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Compiled by: T. Kolodizieva
K. Melnykova

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Guidelines for comprehensive professional training are presented to help higher education students master practical organizational skills, technological, technical and information support of basic logistics functions.

For Bachelor's (first) degree higher education students of speciality 073 "Management" of the educational program "Logistics".

UDC 005(072.034)

Introduction

Today, in higher education, it is very important to use methods based on the use of modern educational technologies, which increase the quality of student training and the development of their abilities and independence in solving industrial problems. Training forms provide for the identification of students' creative potential and independence, information exchange, business communication skills, and development of the skills of a modern logistics specialist.

The purpose of the training is to master the practical skills of organizational, technological, technical and information support of the basic functions of logistics.

To achieve the goal, the following tasks have been defined:

to carry out operational and current management of individual links of logistics chains and 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 proposed training is comprehensive, and it is aimed at consolidating knowledge and practicing skills to form future specialists' modern theoretical knowledge and practical skills in using the principles and methods of logistics in the general management system of an enterprise.

The results of training and competences formed by comprehensive professional training are defined in Table 1.

Table 1

Learning outcomes and competences

Learning outcomes	Competences that must be mastered by a student of higher education
LO3	GC9, SC5
LO8	SC7
LO15	SC6
LO16	GC9, GC11
LO17	GC3, GC10, GC11, GC14, SK9
LR18	GC4, GC5, SC2, SC16
LR19	SC2

Note.

GC3 is the ability to think abstractly, analyze, syntheze.

GC4 is the ability to apply knowledge in practical situations.

GC5 is knowledge and understanding of the subject area and understanding of professional activity.

GC9 is the ability to learn and master modern knowledge.

GC10 is the ability to conduct research at an appropriate level.

GC11 is the ability to adapt and act in a new situation.

GC14 is the ability to work in an international context.

SC2 is the ability to analyze the results of an organization's activities, to compare them with the factors of influence of the external and internal environment.

SC5 is the ability to manage an organization and its divisions through the implementation of management functions.

SC6 is the ability to act socially responsibly and consciously.

SC7 is the ability to choose and use modern management tools.

SC9 is the ability to work in a team and establish interpersonal interaction when solving professional tasks.

SC16 is the ability to form a comprehensive program to increase the company's competitiveness on the national and international markets from the point of view of logistics as a new paradigm of entrepreneurial activity.

LO3 is the ability to demonstrate knowledge of theories, methods and functions of management, modern concepts of leadership.

LO8 is the ability to apply management methods to ensure the effectiveness of the organization.

LO15 is the ability to act in a socially responsible and socially conscious manner based on ethical considerations (motives), respect for diversity and interculturality.

LO16 is the ability to demonstrate the skills of independent work, flexible thinking, openness to new knowledge, be critical and self-critical.

LO17 is the ability to conduct research individually and/or in a group under the guidance of a leader.

LO18 is the ability to use the principles and methods of logistics in the general management system of an enterprise to reduce costs and optimize logistics flows and processes of organizations.

LO19 is the ability to apply a logistic approach to the management of organizations' resources and to ensure an increase in their competitiveness; demonstrate skills in optimizing the organizational and technological aspects of the main functions of logistics using communication and information support.

Comprehensive training
"Functional areas of logistics"

Stage 1. Choosing a supplier of material resources (6 hours)

The purpose of the stage is to systematize students' knowledge of the conditions of supply and conclusion of contracts for the supply of resources, the development of negotiation skills, the development of strategies and tactics for the negotiation process with a potential supplier, and decision making on the selection of a supplier of material resources.

The content of the stage and the guidelines to performance of the task

The LLC "Suvenir", Kyiv, produces souvenir darts games, which it sells throughout Ukraine.

For the production of finished products the LLC "Suvenir" requires:

1) product A – various components that have a higher priority, they must be delivered twice a week;

2) product B – components, the absence of which may cause difficulties at the final stage of assembly of finished products, they must be delivered within six working days.

The LLC "Suvenir" decided to conclude a contract for the supply of products A and B with only one supplier company. After a preliminary review of approximately 20 qualified suppliers, the LLC "Suvenir" settled on two suppliers operating throughout Eastern Europe, with whom it had previously cooperated.

Both companies have proven themselves well and have a stable financial position. One of them, the Dartboard company, is located in Latvia, the second, the Emka company, is located in Poland.

Suvenir LLC plans to discuss the terms of the contract with each supplier, and then choose the one whose terms will be the most acceptable and profitable. There are a number of issues that should be discussed during the negotiations.

Suvenir LLC, Dartboard and Emka companies have all the necessary information: despite the fact that both competing suppliers did not directly exchange strategic information, they were involved in the general discussion

on pricing, so they have some information about costs and each other's strategies.

The most important issues to be discussed during the conclusion of contracts are listed with some explanations of the positions of Suvenir LLC, Dartboard and Emka firms in Table 2.

Table 2

Positions of the parties before negotiations

Item of the contract	Position of the LLC "Suvenir"	Position of the firm "Dartboard"	Position of the firm "Emka"
1	2	3	4
Basis deliveries	The company wants to conclude a contract on conditions	The company is ready to conclude a contract on conditions	The company is ready to conclude a contract on conditions
Annual amount of deliveries	The company wants to conclude a contract for product delivery in the quantity of: 900 kg of product A; 680 kg of product B with +/– 10 % deviation	The company agrees to conclude a contract for supply of products in the quantity of: 800 t of product A; 680 t of product B with +/–10 % deviations, with penalty sanctions in case of smaller volume deliveries	The company agrees to conclude a contract on delivery of products in the quantity of: 800 t of product A; 680 t of product B with additional payment in case of larger supply volumes, which is provided for by the contract
Price of products	Maximum price of 1 kg of product A may be 3 cond. units. For product B it is 1 cond. unit	The price of product A may be from 2 up to 3 cond. units per kg. For product B it may be from 1 to 2 cond. units per kg	The price of product A may be from 3 to 4 cond. units per kg. For product B it may be from 0.5 to 1.5 cond. units per kg
Losses and damage	Product A is subject to petty theft and injuries. Last year, cooperating with suppliers, Suvenir LLC filed claims for losses and damages in the amount of 8 thousand units. Product B is not subject to theft. Suvenir LLC wants the claims to be paid in case of theft immediately	The company is ready to admit that in case of losses and claim damages will be paid immediately	In case of lawsuits the company agrees to pay only in size, not more than 5 thousand cond. units. Emka wants the LLC "Suvenir" to accept risks to a certain quantity that will exclude extra paper work

Table 2 (the end)

1	2	3	4
Insurance conditions	The company wants vendors to take out insurance with a third-party firm on the terms "responsible for all risks"	The company agrees to conclude an insurance contract on the terms "with responsibility for a private accident"	The company agrees to conclude an insurance contract on the terms "without responsibility for damage"
Schedule of payments	The company wants to postpone payments, because the income of working capital is 1.5 % per month	The company prefers immediate payment with penalty sanctions for delay of payments	It prefers immediate payment with a discount for one earlier payment
Packaging	The products purchased so far are packed in accordance with ISO standards. The company wants to get a new contract to make packaging cheaper	The company has never encountered other types of packaging for this product. It is concerned about the possibility of additional product damage claims in the case of the use of this type of packaging	The company is concerned about filing lawsuits for damages in case of using non-standard packaging
Deadlines of deliveries	Product A needs to be delivered twice per week, product B is to be delivered once a week, with fines, in case of non-fulfillment of this condition, these fines should be larger, considering the losses from lost sales	The company agrees with this condition, except when the cause of the delay is not under the control of the supplier	The company's position is similar to the position of the Dartboard company
Component delivery windows	The company wants to set a one-hour window during which accessories must arrive. This is necessary for drawing up the company's work schedule. The company wants to establish penalties in case components arrive earlier or later than the established one-hour window	The company agrees to such conditions with reluctance. It wants to use penalties only in case of late delivery by a certain time. It does not recognize fines if the reason for the delay is beyond the supplier's control	The company agrees to such conditions with great reluctance. It wants to use penalties only in the case of a certain quantity delivery delays per month. It does not recognize penalties if the reason for the delay is beyond control of the supplier
Special supply of products	If necessary, the company would like the supplier to make one additional supply of products in addition to the contract and the compiled schedule	The company gives consent to a certain number of "free" deliveries per month, by agreement, an additional price is set above this number	The company establishes a fee for additional unscheduled deliveries if the delivery volume does not exceed a certain value

It is necessary to study the positions of the parties before negotiations.

1. Grouping of students into three subgroups: each subgroup represents the interests of one of the three companies: the manufacturing company "Suvenir", the component supplier companies "Dartboard" and "Emka". You can use different methods of grouping into subgroups.

2. Determination of the main stages and tactics of negotiations: the participants and interests of the parties in the negotiations are determined, which must be conducted in accordance with the conditions of the proposed situation. Tactics and stages of negotiations are considered. It is necessary to discuss the degree of trust between the parties, and if it is high and the parties are not inclined to consider their interests as mutually exclusive, then the negotiation process can be reduced to the highest form of cooperation – brainstorming.

The parties may use the principled negotiation method, according to which:

1) primary are not the positions of the parties, but their interests, which must be considered taking into account the entire spectrum of possible positions;

2) before the start of the negotiations, it is necessary to formulate the principles on the basis of which the acceptability of a specific version of the contract will be evaluated.

3. Grouping of students into three subgroups: each subgroup represents the interests of one of the three companies: the manufacturing company "Suvenir", the component supplier companies "Dartboard" and "Emka". You can use different methods of grouping into subgroups.

4. Determination of the main stages and tactics of negotiations: the participants and interests of the parties in the negotiations are determined, which must be conducted in accordance with the conditions of the proposed situation. Tactics and stages of negotiations are considered. It is necessary to discuss the degree of trust between the parties, and if it is high and the parties are not inclined to consider their interests as mutually exclusive, then the negotiation process can be reduced to the highest form of cooperation – brainstorming.

The parties may use the principled negotiation method, according to which:

primary are not the positions of the parties, but their interests, which must be considered taking into account the entire range of possible positions;

before the start of the negotiations, it is necessary to formulate the principles on the basis of which the acceptability of a specific version of the contract will be evaluated.

The following sequence of stages of the negotiation process is appropriate: exploratory; arguments; harmonization; formulation of a decision.

It is necessary for the negotiation process to go through all the stages, otherwise, instead of finding a solution that would satisfy the interests of all the parties as much as possible, the negotiations can be reduced to positional bargaining or turn into a "war" between the parties.

5. Preparation of subgroups for negotiations. Each subgroup should:

1) determine the purpose of negotiations;

2) determine the interests of the parties;

3) develop acceptable areas of agreement;

4) argue the position;

5) develop options for mutual concessions.

6. Conducting negotiations in real time: the delegation participating in the negotiations from each subgroup should consist of two people. Negotiations between the Suvenir and Dartboard teams must be conducted separately from the negotiations between the Suvenir and Emka teams.

15 minutes are allotted for each negotiation. Each point should be discussed separately, as far as possible.

It will be considered unethical for Suvenir LLC to use concessions obtained as a result of negotiations with one of the supplier companies as a means of obtaining greater concessions from another supplier company.

Suvenir company cares about its prestige and high reputation and is interested in mutually beneficial long-term relationships with its partners. Therefore, the company will not deliberately enter into a contract that is not advantageous to the supplier in advance and as a result of which the supplier will suffer losses during the fulfillment of the terms of the contract.

In the process of negotiations, the parties must make a record of the agreements reached. At this stage, students who do not participate in the negotiation process act as observers and record the arguments used, the psychological impact on the partners and the negotiation tactics used.

7. Making a decision on the selection of a supplier of material resources: on the basis of the negotiations, the subgroup representing the interests of Suvenir LLC must make a final decision on the selection of a supplier of material resources. The decision is announced in front of the entire study group.

8. Analysis of the negotiation process that took place: if after the negotiation there is an increased emotionality of the participants, then you can ask questions about their well-being and impressions. Immediately after the game, you need to ask the participants of the negotiations the following questions:

1. Were the negotiations successful?

2. What were the positions and interests of the parties before the start of negotiations? Next, you should ask the observers:

1. Which team used stronger arguments?

2. What negotiation tactics were used?

3. Has partner manipulation been observed?

As a rule, the participants in the negotiations do not use a strategy of cooperation, which allows them to jointly find a solution to the problem. More often, such a form of negotiation as positional bargaining is used, in the process of which the parties formulate their positions and subsequently adjust them (and the compromise method is usually used). As a result of the use of such tactics in the negotiation process, both parties often receive not at all what they would like to receive.

Clarifying the interests of the parties is much more effective than positional bargaining, but for the negotiation process to be carried out using cooperative tactics, the parties must want it, and neither side should push the partner to quickly determine his position.

9. Discussion of possible options for mutual concessions: once again a discussion of possible options for mutual concessions is held and the final version of the negotiation protocol is drawn up, and the next stage is the conclusion of an agreement.

10. Summary: discussion of competitive actions of suppliers and consumers, their mutual influence in the process of procurement of material funds.

At the final stage of the training session, the summing up of the day's results, assessment of the level of awareness and acquisition of practical skills, and evaluation of students is carried out. The final part of the training allows you to determine whether the participants are satisfied or not with various aspects of the educational process, including the atmosphere that has been created.

Stage 2. Building distribution channels of finished products in accordance with the selected sales strategy (6 hours)

The purpose of the stage is to learn, under the given conditions (using the example of a ceramic tile production company), to analyze, choose and build optimal distribution channels and partnership relations in accordance with the chosen distribution strategy for finished products.

The content of the stage and the guidelines to performance of the task

Students are combined into groups of five. One group will represent the expert commission, and the others will represent working groups.

It is assumed that the expert commission is made up of representatives of the highest level (production director, marketing director, logistics director, commercial director, etc.).

The working group consists of middle-level representatives (marketers, logisticians, salespeople) who need to solve the organization's current problems related to the sale of finished products.

Thus, each working group must independently study the situation and, in accordance with its own visions, propose a strategy for the development of sales of the manufacturing enterprise.

As a result, each working group develops its own version of the development of events and its own scheme of distribution channels, which must be presented for the judgment of the expert commission. Protection of projects is carried out in public.

For its part, the expert commission must evaluate each of the projects, firstly, from the point of view of logistical approaches to conducting economic activity, and secondly, from the point of view of economic results: profit and profitability. Based on the results of the work, the expert commission makes a decision about the winning project. In order to obtain an adequate result, the coordinator of the expert commission acts as a coach.

Stage conditions:

1. Characteristics of the enterprise.

The private limited liability company "Kharkivskyi Plytkovyi Zavod" produces ceramic products for interior wall and floor cladding. The main product is facing ceramic tiles, which account for more than 85 % of production. In addition, the enterprise produces decorative ceramic and household products. The total annual volume of production is about 24 million square meters per year (you need to use the Internet).

2. Overview of sales markets.

At this time, there is no shortage of facing tiles on the domestic market of building materials. We offer a wide range of tiles from both Ukrainian (30 % of the market) and foreign manufacturers (Italian, Spanish, Czech – 70 % of the market) of various sizes and types of decoration.

Imported tiles are presented complete with decorative elements (inserts, borders, decorative elements).

The products of domestic factories differ in quality, but the prices of imported tiles (15 – 40 units per square meter) significantly exceed the prices of domestic tiles (6 – 15 units per square meter).

The forms of sale of finished products are different, in particular:

1) sale to dealers. This form makes it possible to reduce the prices for tiles set by manufacturers. Dealers independently provide advertising and sales of products. The manufacturer does not need to enter into competition for sales in this region. For the dealer, this form gives the advantage of a low price and lack of competition within the given market. For the manufacturer, this advantage consists in the pre-planned and guaranteed shipment of products, according to the current contract with the dealer;

2) periodic one-time, possibly multiple, large wholesale shipments. Customers are large construction organizations that supply construction complexes in individual regions. The advantage for the customer in this case is again relatively low wholesale prices from the manufacturer. For the

manufacturing company, the advantage is the possibility of partial or full prepayment and at the same time large volumes of shipment;

3) sales of products in the field of trade on different terms. These can be large warehouse-stores, which, in turn, sell to a network of various construction and hardware stores. This form implies long-term and fairly stable relations with these customers. However, such a form requires a preliminary analysis of the partners' abilities and subsequent monitoring of their fulfillment of their obligations according to the calculations. The advantage of this form for the customer is the possibility of credit calculation and delivery of products by the company's transport. Sufficient stability of planned sales is an advantage for the manufacturer;

4) sales through the manufacturer's own sales network. This form requires significant costs and efforts on the part of the manufacturer, but it provides an opportunity to analyze demand to improve production planning (sizes, types, etc.). Such a form allows the manufacturer to set the most acceptable price. Market demand is seasonal in nature, i.e. in the period from December to March, the demand decreases significantly due to the reduction of construction works. The form of dealer relations can also be cyclical, but it can be settled by account trade offers, sales promotion, etc., carried out by dealers.

3. The structure of the sales department: today the sales department has an organizational structure of nine people: the head of the sales department, four sales managers and four assistants of managers.

4. Organization of product sales and pricing: PLLC "Kharkivskyi Plytkovyi Zavod" has advantages in selling its products. The company sells more than 70 % of its products in the Kharkiv region. The main buyers are trade and construction organizations. Sales organization is carried out in-house.

PLLC "Kharkivskyi Plytkovyi Zavod" sells its products at a price ranging from 6.0 cond. units up to 7.5 cond. units.

5. Analysis of competitors. Today, among the manufacturers of Western European countries, the biggest competition comes from the Tubodzin factory (Poland). It offers tiles in a diverse assortment of standard sizes, with a diverse range of colors, with good quality and at a price that does not exceed 6.5 cond. units per sq. m.

The joint venture "Agromat" (Ukraine, Kyiv) is also a strong competitor and through the dealer network of the company "Keramika" it ensures the

sale of the entire volume of products, but the price of tiles is higher than the prices of other domestic manufacturers (7.3 – 9 cond. units per unit).

Imported products have good quality and design, but are sold at much higher prices.

The price on the market is an important factor of competitiveness.

In this regard, the products of PLLC "Kharkivskyi Plytkovyi Zavod" have an advantage at the current price of 6.0 – 7.5 cond. units.

It can be compared with the average cost of ceramic facing tiles currently used by construction organizations of Ukraine – 10.5 cond. units.

6. Service organization: Kharkivskyi Plitkovyi Zavod has the opportunity to organize the delivery of goods to the buyer by rail and road transport (involving transport intermediaries).

Costs for transportation of 1 sq. m of tiles by rail transport for a distance of 1,000 km is 1.2 cond. units and 1.1 cond. units by car.

All transport costs are borne by the buyer of the products. During the transportation of products by rail transport, mandatory insurance against total or partial damage of the cargo is applied.

During transportation by motor vehicle, the cost of insurance is included in the transportation tariff. Insurance costs are borne by the buyer.

The task:

1. Study the situation and determine which distribution strategy should be chosen. Argue your choice based on the given facts.

Strategy options:

Strategy 1: to quickly enter the market in a new quality in order to ensure timely sales of the planned volume of production of finished products (maximum capacity utilization).

Strategy 2: to gradually conquer the market by getting closer to the consumer and promptly responding to his requests regarding the assortment and quality.

Strategy 3: to expand the sales market (both economically and geographically), positioning itself not only as a competitive enterprise that produces products, stable in terms of price and quality, but also as an enterprise with a reliable reputation and a positive image.

Strategy 4: full focus of sales on the Kharkiv region with the aim of being able to sell products at higher prices.

2. In accordance with the chosen strategy, schematically indicate the most attractive options for the distribution of finished products (sales channels).

Using the proposed possible partnership options, choose the most effective tactical techniques and methods and distribution channels acceptable to you. Explain your position and give a final assessment of the proposed measures. At the same time, explain the optimality of your decision in this situation.

Variants of partnership in the distribution system of finished products:

1. Sale through the Budivelnyk retail network.

Information about the company. Budivelnyk is a chain of four retail stores located in Kharkiv and Kharkiv region (two each, respectively).

Budivelnyk has been on the market for five years. During this time, he managed to establish itself among consumers as a seller with a high level of service.

Budivevelnyk offers a whole range of additional services in the process of selling its goods, for example, such as: organization of delivery of goods at any time convenient for the consumer from 7 to 24 hours, consultation on the correct use of purchased goods, design services, etc.

However, the price level for goods in this network is slightly higher than the average market price level.

The Budivelnyk company offers the following terms of the dealer contract to PLLC "Kharkivskyi Plitkovyi Zavod": Budivelnyk will procure a certain amount of products in the contract every month (with a breakdown into two stages), paying according to the invoices at the time of submitting the shipment invoice. The transportation of the goods will be carried out by the Budivelnyk. The contract is concluded for one year. Twice a year, PLLC "Kharkivskyi Plitkovyi Zavod" is offered to hold promotions in Budivelnyk stores.

The purchase of products should be accompanied by incentive gifts, for example, a box of adhesive for facing tiles and other image and marketing strategies (presentations, mailing of letters, etc.). All expenses for the organization of the actions are borne by PLLC "Kharkivskyi Plitkovyi Zavod".

2. Sale through the Keramika company.

Information about the company. The Keramika company offers PLLC "Kharkivskyi Plitkovyi Zavod" to enter into a contract for exclusive distribution activity in the central region of Ukraine. According to this contract, Keramika

will buy from the company 60 % of its products at a fixed price of 6.0 cond. units for 1 square meter and sell products in the central region of Ukraine, with the exception of Kharkiv and Kharkiv region, so as not to create competition for the manufacturer himself. Deliveries should be made three times a month, with an even breakdown of the monthly production volume. The contract should stipulate that the tiles are sold to it cheaper, but Keramika takes out the tiles itself.

Claims regarding the quality of the Keramika product will be forwarded to PLLC "Kharkivskyi Plitkovyi Zavod". In all other cases, from the moment of shipment of the product, all responsibility for the safety of the cargo will be borne by the Keramika company. The contract is proposed to be concluded for one year and at the end of this period, if there are no objections, the contract will be extended. Keramika has established itself as a reliable distributor in the building materials market.

3. Sale through the company "Stroyzbut".

Information about the company. The company "Stroyzbut" has been on the market for two years. Stroyzbut is a joint venture engaged in the purchase of construction materials for large construction companies operating mainly in the territory of western Ukraine. However, there are also customers among Kharkiv firms. The company has proven itself satisfactorily among its partners. Such a not so high assessment of the company's activity is connected with frequent violations of contractual relations, first of all, in relation to the terms of fulfillment of obligations. The reasons for such deviations were, as a rule, subjective. However, the partners of Stroyzbut often turned a blind eye to this, since the company works with large volumes and reasonable prices.

The firm "Stroyzbut" offers PLLC "Kharkivskyi Plitkovyi Zavod" the following terms of partnership:

every month, the company "Stroyzbut" buys a monthly volume of products from the enterprise at a price of 5.9 cond. units.

Deliveries must be made once a month. At the same time, PLLC "Kharkivskyi Plitkovyi Zavod" organizes freight forwarding service at its own expense and assumes the risks associated with the return of low-quality and damaged products in the process of loading/unloading and transportation of products (in accordance with the terms of the contract between PLLC "Kharkivskyi Plitkovyi Zavod" and the transportation organizer).

Once a year, the company "Stroyzbut" undertakes to exhibit the products of PLLC "Kharkivskyi Plitkovyi Zavod" at a specialized exhibition at its own expense. The contract is proposed to be concluded for one year, and in the case of satisfactory work of the parties, to be concluded for subsequent years as well.

4. Sale through the Obiect company.

Information about the company. The Obiect company offers PLLC "Kharkivskyi Plitkovyi Zavod" to enter into a distribution agreement for the exclusive sale of small tiles. The agreement should provide for the following: the Obiect company undertakes to buy 40 % of the volume of production of PLLC "Kharkivskyi Plitkovyi Zavod" at a price of 5.8 cond. units.

Deliveries must be made once a month. The goods are delivered by the company "Obiect". Once a year, Obiect guarantees the organization of advertising campaigns, at its own expense. PLLC "Kharkivskyi Plitkovyi Zavod" bears the risks of returning low-quality products and the risks associated with improper assortment selection.

The attitude of the partners towards the Obiect company as a reseller is ambiguous. Approximately half of the partners are satisfied with the work of the Obiect company, the other half have complaints about quality and price, and, first of all, regarding disruptions in delivery terms. There are also unsatisfactory reviews regarding marketing methods (organization of promotions).

5. Sale through small intermediaries.

There are many small firms on the market that can act as resellers for PLLC "Kharkivskyi Plitkovyi Zavod". The image of such firms leaves much to be desired. However, their territorial separation allows the enterprise to quickly announce itself and position its products not only in Kharkiv and the Kharkiv region, but also on many other markets of local and regional importance.

At the same time, PLLC "Kharkivskyi Plitkovyi Zavod" has the opportunity to disperse deliveries in time, thus ensuring the possibility of even loading of production capacities and reducing storage costs.

These firms offer the following conditions. Purchase volumes may vary within 50,000 hryvnias. Delivery, as a rule, is organized by the manufacturer at his own expense. All risks associated with the return of low-quality products and products damaged in the process of loading/unloading and transportation are assumed by PLLC "Kharkivskyi Plitkovyi Zavod" or the

transport intermediary (according to the terms of the contract between the producer and the transportation organizer). Check for compliance (since they work with many wholesalers) and the quality of work with customers (as a rule, they work with end consumers of finished products, and this is either an individual consumer or small firms engaged in the repair of apartments and offices) and small trading firms is more difficult. According to statistical observations, partners and clients evaluate the work of such firms at "3" and "4" on a five-point scale.

6. Give an economic assessment of your project according to the indicators given in Table 3.

Table 3

Indicators of economic evaluation of the project

Indexes	Value
Production volume, thousand sq. m	750
Volume of wholesale sales, thousand sq. m	
Wholesale price for 1 square meter, cond. units	
The full cost of 1 square meter, cond. units	4.09
Profit per 1 sq. m., cond. units	
Product profitability, %	
Profitability of sales, %	

Note. Product profitability is calculated as the ratio of profit to cost, and profit on sales is calculated as profit to price.

The task:

1. Analyze the situation and identify the most important points in the process of decision making for project measures, regarding the construction of distribution channels for the finished products of the enterprise.

2. Determine the project evaluation criteria.

3. These can be the highest profitability indicators or the rationality of building logistics sales operations (relative to transportation, storage, etc.), or the reliability and reputation of logistics intermediaries involved in the distribution process.

4. It is necessary to compile a list of assessment criteria, rank them and assign a weight characteristic to each criterion. Then it is necessary to

indicate the point rating scale of the selected criteria (for example, 10 points) and fill in Table 4.

Table 4

Evaluation of projects

Parameter rank	Parameter name	Parameter weight	Project 1		Project N	
			Score	Score based on weight	Score	Score based on weight
1						
2						
3						
…						
n						

5. Points taking into account the weight are defined as the product of the assigned point by the weight assigned to this criterion.

6. The project that collects the highest amount wins.

7. At the final stage of the training class, a summation of the results of this stage of the training is carried out, the level of awareness and acquisition of practical skills are assessed, and the participants of the training are evaluated.

8. Determine the criteria for evaluations of the projects.

These can be the highest indicators of profitability or the purpose of building logistical sales operations (relative to transport storage, etc.), or the reliability and reputation of logistics nicknames, that participate in the process of distribution.

It is necessary to make a list of evaluation criteria, rank them and assign a weight to each criterion. Then it is necessary to indicate the evaluation scale of the selected criteria (for example, 10-point) and fill in Table 4.

Weighted points are determined as the product of the assigned score and the weight assigned to this criterion. In this game, the project that collects the largest amount wins.

Stage 3. Structural reorganization of the distribution system of finished products (6 hours)

The purpose of the stage is to learn, under the conditions of this situation, to identify organizational problems related to the functional subsystem of logistics – distribution logistics, and to develop logistical options for the reorganization of this subsystem.

The content of the stage and the guidelines to performance of the task

The JSC "Kharkiv Khlibozavod" is a manufacturer of bakery and confectionery products. The assortment list is more than 150 items.

The enterprise has production shops (pasta, gingerbread, confectionery, etc.) and auxiliary units (administration, sales and purchasing departments, accounting, transport department).

Analysis of the work of the company's sales department: the sales department is part of the commercial service of the company, which also includes the transport department and the marketing department.

The staff schedule of the sales department is as follows:

head of department;

city store dispatcher;

senior customer service operator;

sales department operator;

regional sales manager;

city store managers (6 people);

regional trade representatives;

storekeepers of warehouses of finished products (4 persons);

freight forwarders of the sales department (10 people).

The total number of the sales department is 30 people.

The distribution channels of the products of the JSC "Kharkiv Khlibozavod" are as follows:

1. The enterprise has three own branded stores that carry out retail sales. One store is located at the enterprise, the other two are in the city districts. Delivery to stores is carried out by the company's own vehicles.

2. The company's products are also sold through city stores.

Delivery is carried out by the company's vehicle with the help of a roundabout. For this, the dispatcher of the sales department accepts orders

by phone or through the city's store managers and organizes three trips around the city: one car for two or three districts of the city. Delivery of products is carried out by freight forwarders of the sales department and drivers of the transport department.

3. Products are shipped to private entrepreneurs (self-delivery).

4. Products are sold in nearby regions through regional trade representatives. Delivery to stores is carried out by the company's vehicles. The duties of regional representatives include the collection of orders from customers and the control of receivables, the analysis of regional sales markets.

5. Wholesale enterprises of the city, oblast and nearby oblasts buy the enterprise's products for the purpose of subsequent resale. This distribution channel implies self-delivery of products.

6. Individual contracts with independent wholesalers on the delivery of products by the company's vehicles are provided for (regardless of where the delivery is made: in the area of the city border or beyond it). Thus, the enterprise has different channels of movement of goods. Of these, the first four channels are the most expensive (maintenance of own stores, wages of store staff, transport costs per product unit are high, because delivery is carried out in small batches, etc.). The latter two channels have much lower transport costs, not only due to larger lots, but also because most wholesale buyers bear this type of cost. However, the development of these sales channels is weak. The reason for this lies in insufficient attention to these methods of realization of finished products by the management of the enterprise, the consequence of which is the lack of adequate financing.

The average monthly sales volume of the enterprise is shown in Table 5.

Table 5

The average monthly sales volume of the enterprise

Type of sale	Sales volume, thousand UAH	Share, %
Brand trade in the city	0.4	6.2
Brand trade in the regions	0.8	12.3
Trade points of the city, including private entrepreneurs	1.3	20.0
Wholesale brokers of the city	1.1	16.9
Wholesale intermediaries in the regions	2.9	44.6
Total	6.5	100

The market capacity of the city is approximately 2.8 thousand UAH per month.

As can be seen from Table 5, the JSC "Kharkiv Khlibozavod" covers only a small part of this need.

Analysis of the activities of urban sales managers showed the inefficiency of their work. It is possible to increase the sales volume of the enterprise in this area by more than 50 %. However, there are other obstacles to increasing sales volumes: the high price of products compared to competitors (high cost); strong competition on the market; inconsistency of quality with its price.

Analysis of the work of the transport department of the enterprise: 14 cars with a load capacity of 7 – 20; 5; 3; 1.2 tons are involved in customer service.

Analysis of the work of the transport shop showed the following bottlenecks:

1. In the current situation, mainly 5 t vehicles are sent on city trips. These are quite large vehicles, convenient for truckers when unloading products, but they have high fuel consumption in urban driving conditions. At the same time, the average tonnage of one trip around the city makes it quite possible to use 1.2 t vehicles, which can accommodate the entire assortment, which will lead to the elimination of re-sorting during loading/unloading. Fuel savings for such work will be up to 50 %.

2. The purchase of fuel by motor vehicle drivers is carried out in cash, which leads to difficulties in controlling expenses.

3. The company's vehicles (mainly large-tonnage ones) return empty from the regions. There are no options for using motor vehicles on the way back.

Tasks for working groups:

1. Give a brief description of the economic situation that has developed at the JSC "Kharkiv Khlibozavod".

2. Analyze the distribution channels of the enterprise's finished products. Determine which channels are direct and which are indirect; which are single-level, and which are multi-level.

3. Analyze the data on the volume of sales of products by enterprises, taking into account other available data, to draw conclusions about the most promising sales channel for finished products. What problems must be solved to develop these channels?

4. Propose a list of measures necessary for the reorganization or modification of distribution channels in order to increase the economic results of the enterprise (reduction of logistics costs, increase of sales volumes, etc.).

5. Give an answer to the question of whether measures will be necessary to expand or reduce the staff of the commercial service of the enterprise in the conditions of the implementation of your proposals, as well as how it is possible to solve the issue of financing, possible risks and information flows.

Summarizing the results of the stage: determine in each working group which parameters of the product distribution system assessment are of greatest interest to the enterprise. Draw conclusions.

At the final stage of the training class, the results of the third stage of the training are summed up, the level of awareness and acquisition of practical skills is assessed, and the students participating in the training are evaluated.

Stage 4. Development of routes and drawing up schedules of delivery of goods by road transport (10 hours)

The purpose of the stage is to develop routes and traffic schedules of road transport in the process of delivery of goods using the criterion of the minimum cost of delivery.

The content of the stage and the guidelines to performance of the task

The business game is devoted to transport management issues in the process of wholesale of goods. Realization of the functions of merchandise supply needs significant investments in resources, which include warehouses, stocks, technological equipment, personnel, as well as vehicles for supply of goods to consumers. The function of logistics is to find ways to achieve maximum profit from the use of resources. Distribution is a concept that summarizes several functions. Efforts to improve the use of resources and reduce costs in the implementation of one of these functions should be considered in the context of the impact on the distribution process as a whole. It is necessary to plan distribution taking into account the nature of the impact of individual decisions on the process of supply of goods in general. In this game, fleet operations are considered as an example of the implementation of one of the functions within the overall distribution process.

Achieving a compromise between the established level of services for the supply of goods to consumers and the limit of transport expenses belongs to everyday problems of commercial firms and requires skills in operational planning. The offered business game foresees a few simplifications. The conditions of the game select the most characteristic simulated situations that provide the necessary ambiguity and are the main events that must be perceived by the participants of the game.

The order of the game

Three to five teams of two to four people can participate in the game. Participants are invited to develop routes and schedules for the delivery of goods for five days of the week. The team that will develop routes and schedules for the delivery of goods at the lowest cost wins. Before the beginning of the game its organizer instructs the participants, responds to their questions and explains the method of filling out calculation and analytical forms. After that, the teams receive a map-chart of the service area, which reflects the location of the warehouse and the stores served (Appendix A); coordinates of shops (Appendix B); a list of store orders according to the day of the week (Appendix C); the order fulfillment plan form (Appendix D); the form for calculating ring route parameters (Appendix E); the form of analysis of the order delivery planning results (Appendix F); the form of the transport schedule (Appendix G).

After the briefing, the groups develop routes, draw up delivery schedules and calculate costs. Then the teams submit the completed forms to the organizer of the game who analyzes the results of the delivery planning, evaluates them and discusses the results with the teams.

Game conditions.

1. Characteristics of the serviced district.

Each player plays the role of a transportation manager for a wholesale company that supplies various goods to 30 stores in the area. The map-chart of the district has the form of a checkered sheet with plotted coordinate axes. The route consists of vertical and horizontal lines that can be used to travel from one point to another. At the same time, transport can go only along horizontal or vertical lines of the grid. A warehouse and serviced stores are located at the intersection of vertical and horizontal lines. The map scale: one

cell is 1 km^2, i.e. the length of the side of the cell is 1 km. This allows you to determine the distance between any two points on the map.

2. Goods delivered to stores.

Goods of three consolidated groups are delivered from the company's warehouses to stores: food (F), beverages (B) and detergents (D).

When loading motor vehicles, it is necessary to ensure that food products and detergents are not subject to common transportation. There are no other restrictions on the joint transportation of goods, that is, drinks can be transported in the same car as detergents means or food goods.

The goods of all three groups are packed in boxes of the same size. The cargo volume is equal to the number of boxes. In these units, the volume of the order, the carrying capacity of the car are measured, and the indicators of the use of transport are calculated.

3. Orders of the stores (Appendix C).

4. Characteristics of the used transport means.

The firm has a little park transport means – six cars. This fleet can perform only a limited number of trips. For other deliveries, the company uses hired vehicles and only if all its own vehicles are loaded. The carrying capacity of theirr own transport is 120 units of cargo (boxes), the capacity of the hired transport is 150.

5. Calculation of the transport working time.

The turnover of the vehicle includes the time of its loading in the warehouse, movement along the route, unloading in the store and additional time required for breaks in the driver's work. These periods are calculated in the following way.

5.1. The loading time at the warehouse.

All vehicles scheduled for the trip leave the warehouse at 8:00 a.m. The time of the first loading of the vehicle is not included in the working hours.

It is possible that the vehicle will make several trips during the day. In this case, each subsequent trip will be preceded by a thirty-minute loading.

5.2. The travel time on the route.

5.3. The average speed on the route is assumed to be 20 km/h, that is, a vehicle covers 1 km in 3 minutes (this means that during this time it passes one cell on the map).

5.4. The time of unloading.

Take the rate of 0.5 min per unit of cargo (for example, 76 boxes will be unloaded in 38 minutes).

5.5. Interruption of the driver's work.

If the length of the route involves the driver staying driving a car for more than 5.5 hours, i.e. more than 110 km, then 30 min should be added to the working time for a break.

5.6. The total working time.

The maximum permissible daytime working time for the vehicle and the driver is 11 hours. Under no circumstances the cargo delivery schedule should exceed this time.

The main duration of a driver's working day is 8 hours. After this his working time is paid according to the overtime payment system up to 11 hours per day.

6. Expenses for maintenance and operation of vehicles.

Every company that has its own transport incurs conditional fixed and conditional variable expenses for its maintenance. Daily fixed expenses for maintaining one own vehicle are $10. Conditional variable costs depend on of the specific cost of 1 km of mileage, and for company's own transport it is $0.5. Expenses for the use of hired transport also contain constant and variable components. For a rented vehicle the company pays daily $50 regardless of the degree of its exploitation. In addition, the company pays $1 for each kilometer traveled by the hired vehicle. These rates include order registration, forwarding services and cargo insurance.

The choice of two options of either to have your own vehicles or hire them is an important element of the firm's logistics strategic planning. At the same time, the second option allows you to save capital, but involves transport costs.

7. Overtime costs.

As mentioned, the main duration of the driver's working day is 8 hours, including a possible break on the way. Over this time to the maximum allowed number of working hours (11 hours), overtime is calculated to the nearest minute and is paid at the rate of $15 per hour of work (i.e. $0.25 per minute of work).

8. Other types of expenses.

If the schedule involves the use of hired transport for transportation of beverages, a security guard should be hired for security purposes. Such a service for one guard per, vehicle costs $20. In other words, if two are used in

one day for transporting drinks by hired vehicles, the costs of the employer on this day will be $40 (regardless of the number of rented vehicle trips).

The company's own transport is usually equipped with safety equipment, which eliminates the need to use additional security.

9. Fines.

9.1. Incomplete transport loading.

If a vehicle (owned or hired) is sent on a route with less than the established minimum volume of cargo (90 cargo units), then a fine should be taken into account, which will be $2 for each underloaded unit (regardless of the vehicle ownership).

If the company's own transport was not used for work during the day, the constant cost of its daily maintenance of $30 should be included in the calculation of transport costs.

9.2. Incomplete use of transport by time.

The minimal duration of the working day is 6 hours. Fine for vehicles, that work for less than 6 hours per day is $10 for the company's own transport and $15 in case of hired vehicles.

9.3. Incomplete fulfillment of the store order.

Game participants must make every effort to deliver the goods to customers on time. If, for some reason, the delivery is delayed, the player will be charged a fine of $3 for each day of delay for each unit of undelivered goods.

The task

Based on the initial data, it is necessary to develop routes and schedules for the delivery of the ordered goods to the district stores; to calculate costs associated with the delivery of goods to stores; to analyze the developed scheme of delivery of goods.

The guidelines

The teams develop the first circular route while performing the necessary calculations. Then, according to the received data, they make up the order fulfillment plan (Appendix D).

Approximate ring routes can be developed, for example, in the following way. We gradually rotate the imaginary ray emanating from point 0 counterclockwise (or clockwise), and begin to "erase" the stores depicted on it from the coordinate field (the effect of a windshield wiper). As soon as the total volume of orders from "erased" stores reaches the capacity of the

vehicle, we fix the sector served by one ring route and outline the store service sequence. Note that this method gives accurate results when the distance between the nodes of the transport network according to the existing paths is directly proportional to the distance in a straight line.

Column 1 indicates the given route number; column 2 lists shops included in the route; in columns 3 – 5, indicate the number of units (boxes) of food products, detergents and drinks ordered by each store. Further, in the form, calculate the parameters of the ring route. Overtime work, possible fines, as well as other costs must be taken into account in cost calculations related to the delivery of goods.

An example of arranging the first route and performing certain calculations based on it is given in Table 6.

Table 6

An example of calculating the parameters of the first route

Route number	Store number	Order volume, units			Calculations
		F	D	B	
1	29	8	6	–	The volume of the transported cargo P = 120 boxes. The length of the route l = 42 km Duration of operation of the vehicle on the route. T = 42 × 3 + 120 × 0.5 = 186 min. Expenses for the execution of the route C = 42 × 0.5 = $21. The way to shops 0–1–29–30–3–4–6–7–0
	30	12	8	–	
	1	10	5	–	
	3	22	12	–	
	4	5		–	
	6	16	10	–	
	7	6	–	–	

Note. The way around the shops is recorded in the form of a sequence of numbers, corresponding to the numbers of the stores served. For example, the entry 0–1–5–7–0 means that the car left the warehouse (item 0) to store 1, then 5, 7 and returned to the warehouse (item 0).

After determining the length of the route, the received information is entered in the transport schedule (Appendix G). An example of filling out the schedule for the first route of the first vehicle is given in Table 7.

Table 7

The transport schedule form

Vehicle number	The first trip		The second trip		The third trip		Total operating time of the vehicle, hours
	Time of dispatch from the warehouse	Time of arrival at the warehouse	Time of dispatch from the warehouse	Time of arrival at the warehouse	Time of dispatch from the warehouse	Time of arrival at the warehouse	
1	8:00	11:06	11:36	etc.			
2	8:00						
3	8:00						
4	until 8:00						
…							

The decision to use a certain vehicle on the calculated route is made on the basis of a comparison of the time of actual operation of the vehicle and the time length of the route. It should be kept in mind that the established tariffs are paid services of only those vehicles that have worked for 6 – 8 hours per day (operation shorter than 6 hours incurs fine, longer than 8 hours means overtime pay).

After completing all orders, the teams analyze the results of planning the supply process in the form given in Appendix F.

Stage 5. Solving the cases (8 hours)

Logistics scenarios

What will the logistics marketplace look like in five to ten years? That's still an open question. We take a closer look at how some of the key disruptions facing the industry may interact. We have done this by describing four logistics scenarios. In each of these, technology plays a key role, but affects the market in different ways. In two of the models, new entrants are the primary drivers of change, while incumbents retain a dominant position in the other two. The nature of market dynamics, especially the level of collaboration versus competition, also varies between the scenarios (1 – 4).

1. Sharing the Physical Internet (PI) incumbents increase their efficiency and reduce their environmental impact by collaborating more, and developing new business models, such as sharing networks. Research

around the PI leads to shared standards for shipment sizes, greater modal connectivity and IT requirements across carriers.

From manifesto to reality: defining the Physical Internet. The term Physical Internet (PI or π) was first coined by Professor Benoit Montreuil of the Georgia Technology Institute in 2011. It's based on the idea that physical objects can be more efficiently moved around if they become more standardised and share common channels, like data packets on the internet. That requires modularisation and standard interfaces and protocols. In addition, hubs and networks across transport modes will need to be better synchronised, and IT applications and networks will also need to operate together. Montreuil's manifesto proposes π containers in standard dimensions that can be efficiently stacked together, potentially with sensors if appropriate, and sealable for security purposes. To make the most of these, π movers and π loading systems will need to be developed too, as well as more efficient transport models. Characteristics of scenario 1 given in Fig. 1.

Customer expectations	**New entrants**
• More sustainable supply chains. • Willingness to explore new kinds of collaboration with their LSP	• Incumbents play a dominant role in directing and using shared networks. • Minor role of new entrants
Technology	**Collaboration vs. competition**
• PI standards lead to new solutions for loading and packing. • Consistent, shared communications standards and data exchange	• Increase in collaboration, based on consistent physical standards. • Incumbents focus on defining unique value propositions

Fig. 1. **Characteristics of scenario 1**

2. Start-up, shake-up. New entrants become significant players and take market share from the incumbents through new business models based on data analytics, blockchain, or other technologies. One or two become dominant in specific segments. Last-mile delivery becomes more fragmented, with crowd-delivery solutions gaining ground. These start-ups collaborate with incumbents and complement their service offers. Characteristics of scenario 2 are given in Fig. 2.

Customer expectations	New entrants
• Low-cost personalised service with real-time visibility. • Choice of delivery channels. • Participation in sharing economy	• Start-ups drive technology development and innovation. • App developers become full-on integrators
Technology • Crowd-sharing platforms increase. • Blockchain technology gains ground and facilitates collaboration	**Collaboration vs. competition** • Collaboration between start-ups and incumbents. • Start-ups complement incumbents' service offers, particularly around last-mile delivery and supporting functions

Fig. 2. **Characteristics of scenario 2**

3. Complex competition. Big retail players expand their logistics offerings to fill their own needs and beyond, effectively moving from customers to competitors. They purchase small logistics players to help cover major markets, and draw on their deep understanding of customer behaviour to optimise supply chains. Technology firms who used to be suppliers to the industry enter the logistics arena too, offering logistics services and turning into competitors. Characteristics of scenario 3 are given in Fig. 3.

Customer expectations	New entrants
• Customers rapidly digitise supply chains. • Autonomous vehicles become accepted by customers	• New entrants are predominantly major players from online retail, and technology-based industries
Technology • Warehouse robotic solutions increase in sophistication. • Autonomous vehicles achieve market maturity. • 3d printing-based manufacturing gains scale	**Collaboration vs. competition** • Major retail and logistics platforms compete for dominance. • Retailers initially develop logistics capability to support own operations, but gradually move into 3rd party provision

Fig. 3. **Characteristics of scenario 3**

4. Scale matters. Incumbents increase efficiency by streamlining their operations and taking full advantage of new technology. They fund promising new technologies with venture capital cash, and attract new staff with critical skills and expertise in competition to create a dominant market position. Major players merge to extend their geographical scale and enhance their cross-

modal coverage. Access to capital to fund these investments becomes increasingly important. Characteristics of scenario 4 are given in Fig. 4.

Customer expectations	**New entrants**
• Customers expect efficiency, speed, and digital fitness. • They want higher levels of user friendliness and comfort	• New entrants are acquired by incumbents as soon as they develop promising technologies or business models
Technology • Technologies such as data analytics enhance efficiency in large logistics networks. • Corporate-led incubators and venture arms drive technology development	**Collaboration vs. competition** • Competition heats up between incumbents, putting pressure on margins. • Scale is a necessary condition to achieve the efficiency to remain competitive

Fig. 4. **Characteristics of scenario 4**

Questions

For each scenario, find out:
What's driving this scenario?
What are the implications for logistics companies?
What are the implications for customers?

The system of control and evaluation of training results, the success of students' studies

The university uses a 100-point accumulative system for evaluating the learning outcomes of higher education applicants.

Evaluation of training results is aimed at checking the training participant's ability to demonstrate the degree of assimilation of new material, growth of knowledge and improvement of skills.

Emphasis is placed on improving the student's ability to use new information and acquired skills to achieve personal and professional goals, on the student's readiness to generate his own ideas and find ways to solve possible problems. This presupposes that the student is critical of the array of information provided and concentrates efforts on the most relevant aspects of training.

The production of new ideas and strategies for overcoming difficulties is the basis of the organization of the training process and the determination of methods for evaluating its results.

Assessment measures aim to determine whether students understand the long-term purpose of their learning and to see how they will apply the new knowledge, skills and attitudes.

Important areas of evaluation of training results are the benefits received by students (training results) and the strategic construction of the training (the program, which includes attending classes, the level of demonstrated activity, the selection, use and provision of information, the level of presentation and reporting tasks, compliance rules developed at the beginning of the training, independent work, final paper). Accordingly, the trainer's task is not only to impart knowledge and demonstrate skills, but also to find out exactly how students learn new things and how to help them determine the best way to use existing and new resources. The evaluation of the training session is presented in Table 8.

Table 8

Evaluation of each stage of training according to criteria

Criterion	The share of the criterion	Components of the criterion	The share of the components of the criterion	Stage 1, point	Stage 2, point	Stage 3, score	Stage 4, point	Stage 5, point	Total score
The result of the training	0.4	Participation in the presentation of the group work results	0.2	2	3	3	10	2	20
		Accuracy and completeness of the indicator calculations	0.2	2	3	3	10	2	20
Independent work of students during the training	0.2	Independence	0.2	2	3	3	10	2	20
Extracurricular independent work of students based on the training results	0.4	Drawing up a training report	0.3	3	4.5	1.5	15	3	30
		Protection of the training report	0.1	1	1.5	1.5	5	1	10
Total score	1	x	1	10	15	15	50	10	100

The goal, tasks and competencies that are formed during the training, as defined by the trainer, are the basis for the situational tasks. The trainer is more interested in objective evaluation, because regardless of the quality of teaching, different students can use different aspects of the acquired qualification in practice and do it in different ways to achieve their own special goals.

Students are more interested in testing the effects of the training because the new skills are directly applicable to their daily work. Self-assessment, implementation of individual projects and analysis of training results are an integral part of training. Each student is responsible for making effective use of new resources to achieve the goal.

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Information resources

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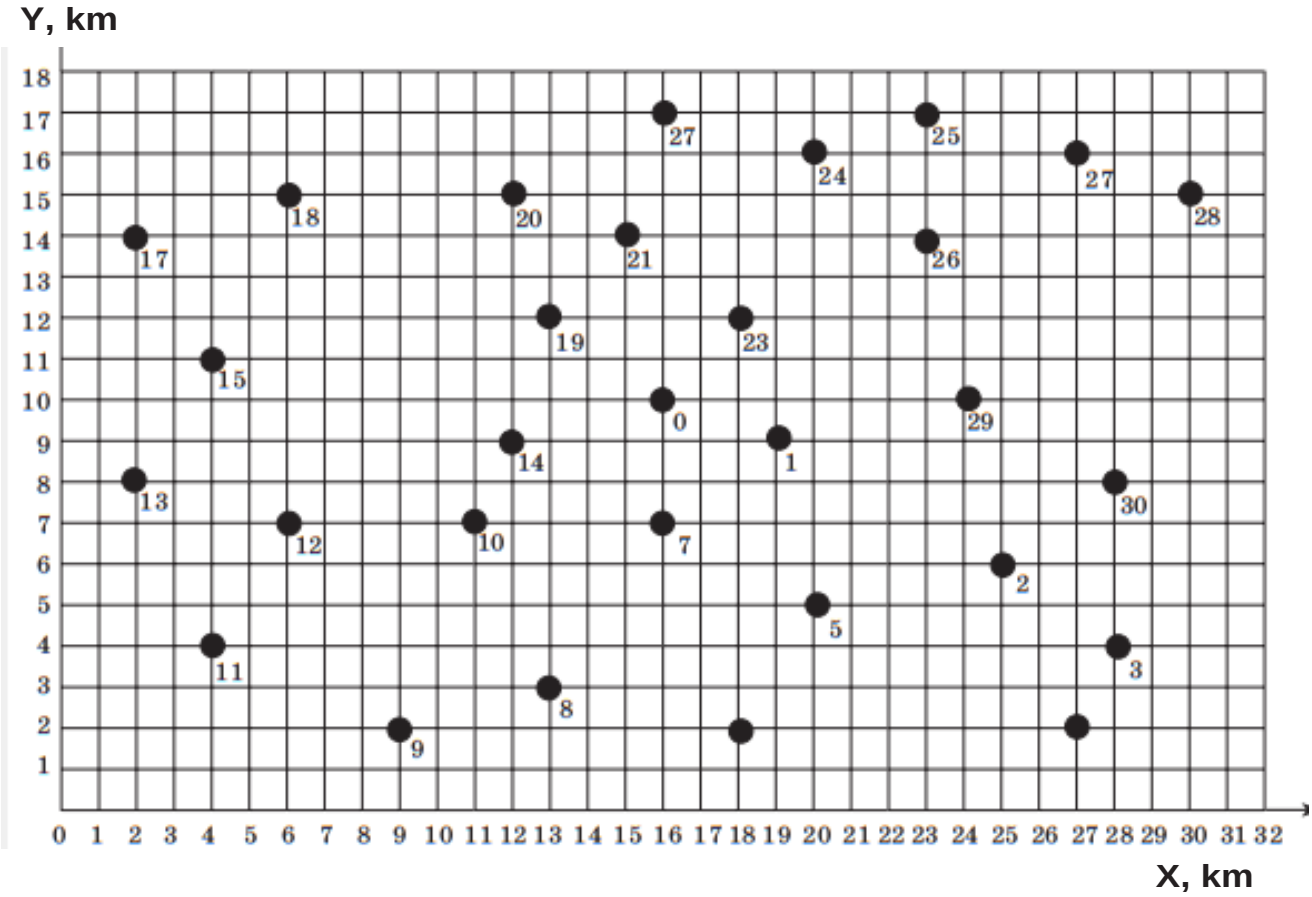
Appendices

Appendix A

A map-chart of the service area



Note. The dots on the map of the marked stores mean consumers of the material flow. In the lower right cell of the store its number is indicated. A distribution warehouse is located within the district – point 0.

Store coordinates

Store number	Store coordinates	
	X	***Y***
1	19	9
2	25	6
3	28	4
4	27	2
5	20	5
6	18	2
7	16	7
8	13	3
9	9	2
10	11	7
11	4	4
12	6	7
13	2	8
14	12	9
15	4	11
16	8	12
17	2	14
18	8	15
19	13	12
20	12	15
21	15	14
22	16	17
23	18	12
24	20	16
25	23	17
26	23	14
27	27	16
28	30	15
29	24	10
30	28	8

Note. The coordinates of the distributive warehouse: *X* is 16; *Y* is 10.

Shop orders

Store number	Monday			Tuesday			Wednesday			Thursday			Friday		
	F	D	B	F	D	B	F	D	B	F	D	B	F	D	B
1	–	5	4		–	8	10	5	–	2	–	16	20	–	6
2	10	8	12	12	8	–	24	–	10	10	4	–	–	4	12
3	22	12	10	24	8	19	20	10	15	10	5	5	10	11	15
4	5	–	9	–	–	8	8	4	6	25	4	6	8	–	17
5	13	17	10	20	10	12	17	–	8	25	5	15	25	–	5
6	16	10	–	15	5	25	12	6	20	20	5	11	10	5	18
7	10	4	–	17	4	10	6	2	15	13	8	7	6	4	10
8	10	7	12	10	4	–	20	–	6	5	2	5	22	–	–
9	14	5	3	–	–	10	14	6	9	20	5	6	14	6	6
10	20	10	6	20	–	8	10	7	15	–	–	11	4	3	8
11	22	10	10	14	6	12	25	5	10	–	–	–	9	5	5
12	12	4	3	10	–	–	20	–	16	10	6	5	25	–	11
13	25	10	18	9	5	7	–	5	8	8	5	14	10	4	6
14	10	5	–	–	5	10	15	6	10	–	–	–	15	6	10
15	8	3	5	6	6	–	10	–	5	20	9	16	8	–	–
16	5	2	3	–	–	5	8	6	8	–	–	–	20	–	5
17	23		16	9	8	–	11	–	5	22	16	16	15	5	12
18	7	3	10	14	–	16	10	12	20	–	–	–	20	–	5
19	6	4	–	5	4	8	7	–	–	18	–	7	6	8	–
20	12	4	–	–	5	6	15	5	7	15	–	8	24	–	8
21	–	–	20	12	10	–	25	4	15	20	10	25	8	5	–
22	10	4	6	6	4	7	10	–	–	6	–	3	11	–	–
23	5	–	–	10	8	12	7	8	10	12	–	5	5	5	22
24	5	–	–	25	10	16	5	10	–	5	–	8	16	–	–
25	7	2	8	7	5	8	–	–	–	7	5	10	–	–	8
26	17	12	10	20	–	6	20	–	10	–	–	–	20	20	20
27	15	–	7	23	16	21	–	–	12	23	–	21	–	–	13
28	10	8	10	10	8	–	10	–	–	20	20	25	10	20	–
29	8	6	6	8	6	3	10	–	–	16	4	–	15	12	12
30	12	8	10	13	3	6	12	8	10	22	–	8	12	8	10

Note. F is food products; D is detergents; B is beverages. The numbers indicate the number of boxes of the ordered product.

The order execution plan

Monday					Tuesday					etc.
Route number	Store number	Order size, boxes			Route number	Store number	Order size, boxes			
		F	D	B			F	D	B	
1	2	3	4	5	1	2	3	4	5	
1					1					
2					2					
3					3					
4					4					
5					5					
6					6					
7					7					

Appendix E

The form for calculating ring route parameters

Indicator	Monday											
	Route number											Total
	1	2	3	4	5	6	7	8	9	10	…	
The volume of the transported cargo, boxes												
The route length, km												
Operating time of the vehicle on the route, hours												
Costs of execution of the route, $												
Indicator	**Tuesday**											
	Route number											**Total**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**…**	
The volume of the transported cargo, boxes												
The route length, km												
Working time on the route, h												
Costs of execution of the route, $												

Appendix F

A form of analysis of the order delivery planning results

Indicator	Formula for calculation	Monday	Tuesday	Wednesday	Thursday	Friday	Total in a week
Total costs for delivery of orders, $	C_t						
Volume of transported cargo, boxes	V_t						
Mileage of the transport, km	L_t						
Number of trips	N						
The coefficient of utilization of the cargo capacity of the transport	$K = \frac{V_t}{N \times Q}$						
Delivery costs per 1 km of mileage, $	$C_d = \frac{C_t}{L_t}$						
Costs for transportation of a unit of cargo,$	$C_u = \frac{C_t}{V_t}$						

Note. Q is the carrying capacity of the transport, boxes.

Transport schedule

Vehicle number	The first trip		The second trip		The third trip		Total working time, hours
	Departure from the warehouse	Arrival at the warehouse	Departure from the warehouse	Arrival at the warehouse	Departure from the warehouse	Arrival at the warehouse	

Contents

НАВЧАЛЬНЕ ВИДАННЯ

Методичні рекомендації до комплексного професійного тренінгу для здобувачів вищої освіти спеціальності 073 "Менеджмент" освітньої програми "Логістика" першого (бакалаврського) рівня (англ. мовою)

Самостійне електронне текстове мережеве видання

Укладачі: **Колодізєва** Тетяна Олександрівна
Мельникова Катерина Валеріївна

Відповідальний за видання *О. М. Ястремська*

Редактор: *З. В. Зобова*

Коректор: *З. В. Зобова*

Надано методичні рекомендації до комплексного професійного тренінгу для оволодіння здобувачами вищої освіти практичними навичками організації, технологічного, технічного та інформаційного забезпечення основних функцій матеріально-технічного забезпечення.

Рекомендовано для здобувачів вищої освіти першого (бакалаврського) рівня спеціальності 073 "Менеджмент" освітньої програми "Логістика".

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Видавець і виготовлювач – ХНЕУ ім. С. Кузнеця, 61166, м. Харків, просп. Науки, 9-А

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