

**Syllabus
of the elective component**

Inventory logistics

Discipline	Inventory logistics
Higher education level	second (master's degree)
Moodle course web-page	https://dl.khadi.kharkov.ua/course/view.php?id=339
Educational component volume	4 credits (120 hours)
Final control form	test
Consultations	according to the schedule
Department	Transport Systems and Logistics Department
Language of teaching	English
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Educational Component Summary:

The purpose is to train highly qualified specialists who can apply a logistic approach to inventory management at commercial and industrial enterprises.

Subject is theoretical and methodological foundations, a system of concepts about the patterns of mutual influence of elements of inventory management systems and their interaction with the environment.

The main tasks of studying an academic discipline are:

- application of methods and techniques to determine the required size of the insurance stock and to analyze the structure of the flow of orders for products, taking into account the variability of demand and the formation of the total profit of the enterprise;
- application of methods and techniques to determine the size of the order and the insurance stock for single-item and multi-item stocks at enterprises under various restrictions, which will allow increasing the efficiency of the warehouse, determining the optimal delivery batches and managing the stocks of cargo owners of the transport distribution network, developing stock management strategies taking into account the basic the principles of optimizing production stocks, and being able to evaluate the effectiveness of the developed options for managing the company's stocks.

Prerequisites for studying the educational component: educational components of the first (bachelor) level of higher education.

Competencies acquired by the applicant:

General competencies:

- Ability to develop and manage projects.
- Ability to evaluate and ensure the quality of the work performed.
- Ability to conduct research at an appropriate level.
- Ability to generate new ideas (creativity).

Special (professional) competencies:

- Ability to research and manage the functioning of transport systems and technologies.
- Ability to manage supply chains and logistics centers.
- Ability to model the operation of inventory management systems at various links in supply chains.

Training results:

Make effective decisions in the field of transport systems and technologies, taking into account technical, social, economic and legal aspects, generate and compare alternatives, assess the necessary resources and limitations, analyze risks.

Develop new transport systems and technologies and improve existing ones, determine development goals, existing limitations, performance criteria and areas of use.

Analyze and evaluate the efficiency of supply chains and logistics centers, calculate relevant indicators.

Develop effective inventory management strategies at various links of supply chains.

Thematic plan

Theme №	Theme (L, LW, PW, SEW)	Hours	
		full-time training	part-time training
1	L. Motives for stock formation	4	4
	PW. Determination of the optimal batch of supplies taking into account storage costs	2	2
	SEW Purposes of inventory formation and functions in supply chains	8	8
2	L. Forecast of demand and consumption of stocks	4	4
	SEW Application of forecasting methods to determine inventory indicators	8	8
3	L. Order cycle and linear stock volume	2	2
	PW. Determination of the optimal batch of supplies taking into account discounts	2	2
	SEW Top-up cost. Inventory storage costs. Total cost of inventory.	10	10
4	L. Inventory management models	2	2
	PW. Determination of multi-item delivery taking into account the car body volume limits	4	4
	SEW Application of forecasting methods to determine inventory indicators	10	10
5	L. ABC-XYZ method of analysis	4	4
	PW. ABC-XYZ inventory analysis	2	2
	SEW Compatible ABC-XYZ analysis	8	8
6	L. The optimal interval between deliveries with multi-item stocks	4	4
	SEW Economic and mathematical methods of inventory management	10	10
7	L. Optimization of aggregate stocks of means of production	4	4
	PW. Determination of the optimal purchase batch.	2	2
8	L. Management of the movement of goods in the warehouse	4	4
	PW. Application of the mission technics to optimize orders	4	4
	SEW Economic evaluation of the use of stocks in production	8	8
9	L. Spare parts and accessories (SP) basic concepts	4	4
	SEW Types of SP	10	10
Total	L	32	32
	PW	16	16
	SEW	72	72

Teaching methods:

1) verbal:

1.1 traditional: lectures, explanations, talks, etc.;

1.2 interactive (non-traditional): problematic lectures, discussions, etc.;

- 2) visual: illustration method, demonstration method;
- 3) practical:
 - 3.1 traditional: practical classes, seminars;
 - 3.2 interactive (non-traditional): business and role-playing games, «round table», brainstorm.

Evaluation system and requirements:

Ongoing achievements

1 The applicants' ongoing achievement in the performance of the both educational activities and self-education work while training is evaluated using a four-point scale with the further conversion into the 100-point scale. While evaluating all kinds of works provided by the educational program are taken into account.

1.1 Lectures are evaluated by determining the quality of specific tasks performance.

1.2 Practical classes are evaluated by the quality of performance of the tests or individual tasks, execution and design of the report on practical works.

2 The final evaluation of the discipline is determined as a sum of points on:

- passed standard tests, verbal questioning, attendance and communication activity level;
- in-class practical tasks execution and theoretical preparation.

Applicants' evaluation score scale according to the ongoing control is given in table 1.

Table 1 – Points distribution under the themes defining a final test score according to the discipline ongoing assessment

Ongoing assessment									Discipline total score
Theme 1	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6	Theme 7	Theme 8	Theme 9	100
12	10	12	12	12	8	10	16	8	

Final estimation

1 The final test score is got by the applicant at the last double-lesson according to the discipline ongoing assessment. The condition to pass the test is not less than 60 points score.

2 Higher education applicants who have an ongoing assessment score less than 60 points can increase it at the last class by taking a combination of written and oral tests that comprise both answering 2 professionally-oriented question and a problem solution with further commenting the work done or standard tests. The applicants who made the tasks previewed by the practical classes are allowed to pass the final test.

3 Extra-points are awarded to the applicants for participation in scientific events.

3.1 Extra-points are added to the achieved sum of points by the higher education applicant for the current educational activity.

3.2 The number of extra-points awarded for different types of individual tasks depends on their volume and importance:

- discipline prize-winning places on the at the international / all-ukrainian competition of scientific students' works – 20 points;
- discipline prize-winning places at all-Ukrainian olympiads – 20 points;
- participation in the international / all-Ukrainian competition of scientific students' works – 15 points
- participation in international / all-Ukrainian scientific conferences of students and young scientists – 12 points;
- participation in all-Ukrainian discipline competitions – 10 points
- participation in KhNAHU discipline competitions and scientific conferences –

5 points;

– implementation of individual scientific and research (educational and research) tasks of increased complexity – 5 points.

3.3 The number of extra points might not exceed 20 points.

4 The result of the study is evaluated on a two-point scale (passed/failed) according to table 2. The total score comprising the extra-points might not exceed 100 points.

Table 2 – Conversion of the score into national evaluation system

According to 100-point scale	According to the national scale
between 60 scores and 100 scores	Passed
Less than 60 scores	Failed

Recognition of non-formal and informal training results

The procedure for the recognition of training results obtained in non-formal and informal education is regulated by [СТВНЗ-83.1-01:2021 «Визнання результатів неформальної та інформальної освіти»](#).

To recognise these results, an applicant should submit an application to the dean of the faculty and attach certificates and other documents confirming the competencies obtained. Based on the results of the application consideration, a subject-specific commission is established to review the submitted documents, interview the applicant and decide on the re-crediting of training results or the appointment of certification in the form of a final control (10 working days are given for preparation). Based on the results of the control, the commission assigns a final grade. If the applicant receives less than 60 points, the results of non-formal or informal education are not credited. When re-crediting training results in a discipline, the applicant is exempt from studying it.

Course policy:

– the course involves working in the team, the environment in the audience is friendly, creative, open to constructive criticism;

– the discipline requires mandatory attendance of lectures and practical classes, as well as self-education work;

– self-education work involves studying certain discipline themes, which are submitted in accordance with the program for self-education work, or have been considered briefly;

– all the tasks provided by the program must be completed within the prescribed time-frame;

– if the higher education applicant is absent for valid reasons, he/she passes the completed tasks during the self-education work and consultations provided by the teacher;

– while studying the course, higher education applicants should follow the rules of academic integrity set out in such documents: «Rules of academic integrity of participants of the KhNAHU Education process» (https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_dobroch_1.pdf), «Academic integrity. The text check of academic, scientific and qualification works for the plagiarism»

(https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_85_1_01.pdf),

«Moral and ethical code of participants of the KhNAHU educational process» (https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_MEK_1.pdf).

– in case of detecting the plagiarism, the applicant receives 0 points for the task and must retake the tasks provided in the syllabus;

– cheating during control works and examinations is prohibited (including mobile devices). Mobile devices are only allowed to be used during online testing.

Recommended literature:

1. Тюріна Н.М. Логістика / Н.М.Тюріна, І.В. Гой, І.В. Бабій. – К.: Центр навчальної літератури, 2021 – 392 с.
2. Кислий В.М. Логістика. Теорія та практика / В.М. Кислий, О.А. Біловодська, О.М. Олефіренко, О.М. Соляник. – К.: Центр навчальної літератури, 2019 – 360 с.
3. Крикавський Є. В. Логістичні системи / Є. В. Крикавський, Н.В. Чорнописька – Львів: Львівська політехніка, 2019 – 288 с.
4. Bowersox D. Logistical Management: The Integrated Supply Chain Process / Donald Bowersox, David Closs. – McGraw Hill Education, 2017. – 752 p.
5. Окландер М.А. Логістика / М.А. Окландер – К.: Центр навчальної літератури, 2018 – 346 с.
6. Bowersox D. Supply Chain Logistics Management / Donald Bowersox, David Closs, M. Bixby Cooper. – McGraw-Hill Education, 2019 – 480 p.
7. Очеретенко С.В. До питання управління запасами автомобільних запчастин на торгових підприємствах / С.В. Очеретенко // Комунальне господарство міст. – 2018. – Вип. 142. – С. 114-118.
8. Очеретенко С.В. Використання знижок в логістичних системах підприємствах / С.В. Очеретенко, В.Ю. Кудріна // Системи управління, навігації та зв'язку: збірник наукових праць. – Вип. 3(55). – П.: ПНТУ ім. Ю. Кондратюка, 2019. – С. 72-75.
9. Очеретенко С.В. Управління складськими запасами та їх оптимізація на підприємствах по ремонту автомобілів / С.В. Очеретенко // Системи управління, навігації та зв'язку: збірник наукових праць. – Вип. 2(64). – П.: ПНТУ ім. Ю. Кондратюка, 2021. – С. 50-52.

Additional sources:

1. Дистанційний курс: <https://dl.khadi.kharkov.ua/course/view.php?id=339>.
2. Асоціація «Український логістичний альянс» [Електронний ресурс] / Офіційний веб-сайт. – Режим доступу : \WWW/ URL: <http://ula-online.org/>.
3. Council of Supply Chain Management Professionals [Електронний ресурс] / Official web-site. – Режим доступу: \WWW/ URL: <http://cscmp.org/>.
4. <https://logist.fm/tags/ukraine>
5. <http://www.bvl.de/en>

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