

Ministry of Education and Science of Ukraine  
National Aerospace University named  
"Kharkiv Aviation Institute"

Department of Management and Business Administration (№ 602)

APPROVE

Guarantor of the Educational Program



Andrii DORONIN

(підпис)

(ініціали та прізвище)

«29» August 2025 p.

**SYLLABUS OF COMPULSORY COURSE**

**Logistic**

((name of academic discipline))

**Fields of knowledge:** 07 Management and administration

**Specialty:** 073 Management

**Educational program:** Management

**Level of higher education:**

first (bachelor's)

**The syllabus has been put into effect since**

September 1, 2025

**Kharkiv – 2025.**

Developer: Valentyna Hatylo, Candidate economy of Science, Assoc. Prof.  
(surname and initials, position, degree and title)

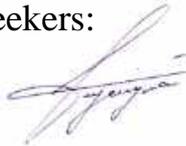


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The syllabus of the academic discipline was considered at the meeting of the Department of Management and Business Administration (№ 602)

Protocol № 1 dated August 29, 2025

Head of the department: \_\_\_\_\_  Candidate economy of Science,  
Assoc. Prof. Valentina Hatylo  
(initials and surname)

Agreed with the representative of the education seekers:  
second (master's) level higher education seeker  Kristyna Gordienko

## 1. General information about the teacher



Valentyna Hatylo, Candidate economy of Science, Assoc. Prof.

He has been teaching at the university since 2006.

Over the past year, he has taught the following subjects:

- Operations Management;
- Supply Chain Management;
- Enterprise Competitiveness Management;
- Logistics;
- Aviation Logistics
- Information Systems and Technologies in Management;
- Communication Management;
- Inventory Management and Warehouse Logistics;
- Economics and Business.

Areas of scientific research: management, human resource management, logistics, corporate image management.

Contact information: v.hatylo@khai.edu

## 2. Description of the academic discipline

Form of education	Full-time
Semester	4
Language of instruction	English
Type of discipline	Compulsory
Scope of discipline: ECTS credits/number of hours	full-time: 4 ECTS credits / 120 hours (classroom hours – 64 hours, of which: lectures – 32, practical classes – 32, independent study – 56 hours).
Types of educational activities	Lectures, practical classes, independent work by the applicant.
Types of control	Ongoing, modular, and final (semester) assessment (exam)
Prerequisites	Mathematics for economists, self-management, organizational theory, introduction to the profession
Co-requisites	Management, marketing
Post-requisites	Business analytics, managing the competitiveness of enterprises, qualification work

### 3. The purpose and tasks of the educational discipline

#### Goal

The aim of teaching the discipline “Logistics” is to develop modern managerial thinking and a system of special knowledge and practical skills in managing material, information, financial, and service flows among higher education students to ensure the optimization of business processes and increase the competitiveness of enterprises in market conditions.

#### Task

To achieve this goal, the following tasks are to be accomplished:

Theoretical:

- mastering the conceptual apparatus of logistics, its concepts and methodological foundations;
- understanding the essence of the logistics approach to enterprise management and the functioning of supply chains;
- studying the features of logistics systems at different levels (micro-, meso-, and macro-logistics).

Practical and methodological:

- mastering methods of planning, organizing, and controlling logistics processes in functional areas (procurement, production, distribution, warehousing, transportation);
- acquiring the skills to calculate the main parameters of warehouse stocks and select optimal strategies for managing them;
- developing skills in selecting optimal transportation routes and modes of transport;
- mastering tools for evaluating the effectiveness of logistics systems and minimizing logistics costs;
- developing the ability to make informed management decisions in conditions of uncertainty and risk in supply chains.

3 According to the terms of the educational and professional program of the first (bachelor) level, students of education through this educational component must acquire the following *competencies*:

#### General:

GC 4 Ability to apply knowledge in practical situations

GC 5 Knowledge and understanding of the subject area and understanding of professional activities.

GC 9 Ability to learn and acquire modern knowledge.

#### Special (professional):

SK1 Ability to identify and describe the characteristics of an organization.

SK4 Ability to identify the functional areas of an organization and the relationships between them.

SC 7 Ability to select and use modern management tools.

SC Ability to plan the activities of an organization and manage time. SKU

SC 12 Ability to analyze and structure the problems of an organization, form well-founded decisions.

SC 20 Ability to understand the economic foundations of an organization's functioning, identify the needs and directions for the rational use of the organization's resources.

SC 21 Ability to apply investment, innovation, and logistics management tools in conditions of uncertainty.

SC 28 Ability to ensure the timely and effective fulfillment of production organization tasks, including at enterprises in the aerospace industry in Ukraine.

As a result of studying the academic discipline, the student must obtain **program results**:

PR 4 - Demonstrate skills in identifying problems and justifying management decisions.

PR 5 - Describe the content of the functional areas of the organization's activities.

PR 6 - Demonstrate skills in searching for, collecting, and analyzing information, calculating indicators to justify management decisions.

PR 20 - Apply a logistical approach to managing organizational resources and ensure their increased competitiveness.

PR 25 - Professionally perform tasks related to the implementation of innovations in the enterprise's activities in uncertain and extreme situations.

#### **4. Content of the academic discipline**

##### **Content module 1. Conceptual foundations of logistics**

##### **Topic 1. Concepts, definitions, and subject area of logistics.**

Concepts and essence of logistics. Origin of the term, modern definitions of logistics. Prerequisites, reasons, and trends in the development of logistics. Stages of development of logistics. Features of the modern stage of logistics development. The purpose and objectives of logistics. Levels of logistics formation. Experience of foreign countries in the application of logistics. The role of logistics in the reform of Ukraine's economy.

*Practical lesson topic:* Fundamentals of logistics: concepts, objectives, and rules.

*Independent work of the applicant:* Conduct a comparative analysis of information system classifications and determine their role at different levels of organization management.

##### **Topic 2. Functional areas of logistics and their main characteristics.**

Logistics operations and logistics functions Functional areas of logistics. Logistics operations. Logistics functions.

*Practical class topic:* Methods of procurement and inventory management.

*Independent work of the applicant:* Using the example of a specific enterprise, identify the main logistics flows and compile a list of key logistics operations carried out in various functional areas.

**Topic 3. Principles of logistics.** Third parties in logistics Principles of logistics. Differences between production organization concepts. Distribution of logistics functions among enterprise departments. Third parties in logistics. Functions of logistics intermediaries. Classification of PL operators. Features of service flows.

*Practical training topic:* Determining the economic size of an order when the supplier offers wholesale discounts.

*Independent work of the applicant:* Prepare an analytical report on the market of logistics providers (3PL and 4PL) in Ukraine, giving examples of functions delegated to them by manufacturing companies.

**Topic 4. The concept of logistics.** The logistics concept of “planning needs/resources, RP.” The logistics concept of “just-in-time (JIT).” The concept of logistics. Logistics concept “planning needs/resources, RP.” Logistics concept “just-in-time (JIT).”

*Practical lesson topic:* Calculating the parameters of an inventory management system with a fixed order size. Calculation of inventory management system parameters with a fixed time interval between orders

*Independent work of the applicant:* Compare “push” and “pull” material flow management systems, identifying the advantages and risks of implementing a JIT system in domestic enterprises.

**Topic 5. Logistics systems.** A systematic approach to logistics. Issues in procurement. Goals and objectives of procurement logistics. The “make or buy” dilemma. Characteristics of procurement. The task of selecting a supplier. Stages of the procurement process. Forms of procurement organization. Organizational structure of the procurement department.

*Practical training topic:* application of ABC and XYZ analysis methods in inventory management

*Independent work of the applicant:* Develop a system of criteria (price, quality, reliability, etc.) and a rating algorithm for selecting the optimal supplier of raw materials.

**Topic 6. Inventory management systems** Procurement logistics tasks. Methods of material supply for production. Types of inventory. Inventory management systems. Fixed order size system. Determining the optimal order size. Accounting for gradual inventory replenishment.

*Practical training topic:* application of ABC and XYZ analysis methods in inventory management

*Independent work of the applicant:* Solve a case study on calculating the optimal order size (Wilson/EOQ formula) based on specified annual requirements and storage costs.

**Topic 7. Inventory management systems (part 2)** Fixed order size system. Accounting for the possibility of shortages. Generalized indicators of a fixed order size system. Fixed order frequency system. Indicators of a system with fixed order frequency. System with fixed frequency to a constant level (TS system). Maximum-minimum system (S-s system). System with fixed frequency and fixed order (TQ system).

*Practical training topic:* selecting the type of transportation and determining rational delivery routes.

*Independent work of the applicant:* Build graphical models of inventory movement for maximum-minimum systems and systems with fixed order frequency, explaining the conditions for the expediency of using each of them.

**Topic 8. Warehouse logistics** Warehouse management structure. Classification of warehouses. Functions of warehouses in the logistics system. The warehousing process. Choosing the form of warehouse ownership. Costs of setting up a warehouse network. Warehouse systems. Technical and economic parameters of a warehouse. Other technical and economic parameters of a warehouse.

*Practical training topic:* choosing the type of transportation and determining rational delivery routes.

*Independent work of the applicant:* Calculate the usable area of the warehouse and the required amount of lifting and transport equipment based on the specified cargo turnover indicators.

## **Modular control 1**

### **Content module 2. Functional and basic distribution of logistics**

**Topic 9. Distribution logistics (Note: in terms of content, this is Production logistics)** Traditional and logistical concepts of production organization. Intra-production logistics systems and their role in improving the management of goods and services production. Push and pull systems for managing material flows in production logistics. Micro-logistics systems MRP, MRP-2, ERP, KANBAN, OPT, Lean production. Organization of material resource supply and inventory management in micro-production logistics systems. Effectiveness of logistics in managing material flows in production.

*Practical lesson topic:* choosing the optimal distribution system.

*Independent work of the applicant:* Compile a comparative table of the principles of operation of MRP (push) and KANBAN (pull) systems with the definition of conditions for their effective application.

**Topic 10. Inventory Logistics Organization of distribution of materials and finished products.** Traditional and logistical approaches to managing the distribution of materials and finished products. Logistical channels and logistical chains. Internal structure and principles of distribution channels. Logistics intermediaries in distribution, their classification and functions. Coordination and integration of logistics intermediaries' activities. Designing distribution systems. Material resource planning system in DRP distribution channels and its modification DRP-2. Demand response (DDT), quick response (QR), continuous replenishment planning (CRP), and effective response to consumer requests (ECR) systems and the peculiarities of managing material flows in them. The effectiveness of logistics in managing material flows in the field of circulation.

*Practical training topic:* selecting the optimal distribution system.

*Independent work of the applicant:* Develop a distribution channel scheme for bringing a new product to market, justifying the choice of intermediaries and the type of distribution (intensive, selective, or exclusive).

**Topic 11. Transport logistics Comparative characteristics of the main types of transport.** Characteristics of freight flow. Determining the characteristics of transport flow. Material flow modeling. Types of freight transport routes by road. Pendulum route with return empty run. Pendulum route with return partial empty run. Pendulum route with return loaded run. Simple circular route. Delivery route. Combined route. Technical and operational performance indicators of motor transport.

*Practical training topic:* situational tasks (case studies).

*Independent work of the applicant:* Solve the transportation routing problem by calculating the mileage utilization coefficient and the number of vehicles required to perform the variable task.

**Topic 12. Service logistics Service logistics.** Formation of a logistics service system. Level of logistics service. Determining the level of logistics service at an enterprise. ABC analysis. Determining the level of logistics service based on ABC analysis. XYZ analysis. Optimal level of logistics service. Criteria for the quality of logistics service.

*Practical training topic:* situational tasks (case studies).

*Independent work of the applicant:* Segment the company's customer base using the ABC-XYZ matrix to differentiate the level of service.

**Topic 13. Distribution logistics (Basics)** Scheme of operations in physical distribution of products. Main tasks of distribution logistics. Principles of distribution logistics. The process of distribution of goods. The concept and functions of the distribution channel. The level of the logistics channel. Characteristics of distribution channels. Comparative characteristics of distribution channels. Types of intermediaries. Distribution channel schemes. Criteria for selecting a distribution system.

*Practical training topic:* situational tasks (case studies).

*Independent work of the applicant:* Analyze the advantages and disadvantages of using direct and indirect sales channels for a company in the selected industry.

**Topic 14. Distribution logistics (optimization)** Golden rules of physical distribution. Factors for choosing the location of a distribution center. Organization of the distribution of material flows with different numbers of warehouses. Dependence of the total costs of operating the distribution system on the number of warehouses included in it.

*Practical training topic:* situational tasks (case studies).

*Independent work of the applicant:* Build a graph of the dependence of transportation and storage costs on the number of warehouses in the network and determine the minimum point of total logistics costs.

## **Modular control 2**

### **5. Individual tasks**

The curriculum provides for the completion of calculation and graphic work in the discipline. Calculation work is an independent type of task preparation. Individual task on the topic “Management of material flows based on step-by-step accounting of logistics costs.” A typical task is provided to the student in several options.

### **6. Teaching methods**

The course involves the use of active and interactive teaching methods, such as problem-based learning and mini-lectures, practical classes in an active form, testing, solving situational and practical tasks, case studies, and business games.

The main differences between active and interactive teaching methods and traditional ones are determined not only by teaching methods and techniques, but also

by the high efficiency of the learning process, which is manifested in: high motivation of students; consolidation of theoretical knowledge in practice; increased self-awareness of students; the development of the ability to make independent decisions and collective decisions; the development of the ability to integrate socially; the acquisition of conflict resolution skills; the development of the ability to compromise.

Lectures, practical classes, independent work with educational and reference literature, independent completion of tests (for part-time study), consultations. For a number of topics in the lecture material, the use of multimedia equipment in the form of thematic videos is provided, which reveal the essence of individual topics of this discipline.

Knowledge is assessed according to the principles of the credit-modular system and consists of current, modular, and final assessments. The final assessment is based on tests for each content module and the results of the comprehensive test. The modular assessment is based on the results of a comprehensive test.

## **7. Control methods**

Ongoing assessment (theoretical questioning and practical problem solving), modular assessment (testing by course sections), and final (semester) assessment (exam).

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Student knowledge is assessed and tested in the following ways:

1. Student attendance is monitored at each class.
2. Verification and assessment of student knowledge during practical classes.
3. Assessment of the completion of independent work assignments.
4. Conducting current control works (testing, theoretical and situational tasks).
5. Conducting current modular control.
6. Conducting an exam.

The purpose of testing and assessing students' knowledge during practical classes is to check their level of theoretical knowledge on the topic of the practical class and their ability to apply it when solving practical problems. Assessment is carried out on a 100-point scale according to the following criteria:

- 1) the degree of mastery of the theoretical material covered in class and its understanding;
- 2) the degree of ability to acquire the competencies acquired in practical classes;
- 3) the level of study of the main and additional recommended literature, as well as contemporary literature on specific topics of the academic discipline;
- 4) ability to combine theory with practice in solving problems, ability to justify decisions made;
- 5) logic, style, and structure of answers to questions in the student's written work and in oral answers in the classroom;
- 6) the student's ability to justify their position, summarize information, and draw conclusions.

Ongoing assessments (tests, theoretical and situational tasks) are conducted for each topic (sometimes topics may be combined). This makes it possible to continuously assess students' knowledge of theoretical issues in the academic discipline.

## 8. Evaluation criteria and distribution of points awarded to winners

Components of educational work	Points for one class (task)	Number of classes (tasks)	Total number of points
<b>Content module 1</b>			
Completion and defense of practical assignments	0...5	5	0...25
Modular assessment	0...15	1	0...15
<b>Content module 2</b>			
Completion and defense of practical assignments	0...5	3	0...15
Modular assessment	0...15	1	0...15
Completion and defense of Individual tasks	0...30	1	0...30
<b>In just one semester</b>			<b>0...100</b>

Additional elements of academic work are assessed and taken into account only if the student receives at least 60% of the maximum points for each element included in Content Modules 1 and 2. A student who has passed all modular and continuous assessments (i.e., successfully certified with a final modular grade of 60 points or higher) is considered to have passed the semester control and, with their consent, may be certified using the final modular grade as the semester grade.

A student whose results in modular and continuous assessments are marked as "unsatisfactory" is required to take a semester control (exam). A student is admitted to the semester control only if they have completed all practical assignments and the calculation task.

The semester control may also be taken by students who wish to improve their final modular grade. In this case, the higher of the two results shall be recorded.

### Accepted rating scale

Sum of points for all types of educational activities	Assessment for the exam, course project (work), practice	
	Exam, differentiated graded test	Pass/Fail test
90 – 100	Excellent	Passed Pass/Fail test
75 – 89	Good	
60 – 74	Satisfactory	
0 – 59	Unsatisfactory	Passed

Semester control (exam) is conducted in case of a student's refusal of current testing (modular control) scores and if the student is admitted to the exam. Admission to the exam is based on the completion and defense of the RGR and the completion and defense of practical work (minimum 10 points). During the semester exam, the student has the opportunity to receive a maximum of 100 points.

### **Criteria for evaluating the applicant's work during the semester**

**Satisfactory (60-74).** Have a minimum of knowledge and skills. Complete and defend all practical work. Be able to independently determine rational supply routes.

**Good (75-89).** Have a solid grasp of the minimum knowledge, complete all tasks. Demonstrate the ability to complete and defend all practical assignments within the time frame specified by the instructor, justifying the decisions and measures proposed in the assignments. Be able to independently determine rational supply routes. Know how to search for cargo for drivers and the stages of cargo coordination.

**Excellent (90-100).** Pass all checkpoints with an “excellent” grade. Thoroughly know all topics and be able to apply the knowledge gained.

## **9. Policy of the educational course**

**Attendance at classes.** Regulation of absences. The interactive nature of the course requires mandatory attendance at practical classes. Students who, under certain circumstances, cannot attend practical classes regularly must agree with the teacher during the week on a schedule for individual work-through of missed classes. Individual missed classes must be worked out at the nearest consultation within a week after their absence. Work-through of classes is carried out orally in the form of an interview on questions specified in the class plan. In some cases, written work-through of missed classes is allowed by completing an individual written assignment.

**Compliance with the requirements of academic integrity** by students during the study of the academic discipline. While studying the academic discipline, students must adhere to generally accepted moral and ethical norms and rules of conduct, and the requirements of academic integrity stipulated by the Regulations on Academic Integrity of the National Aerospace University "Kharkiv Aviation Institute" (<https://khai.edu/assets/files/polozhennya/polozhennya-pro-akademichnu-dobrochesnist.pdf>). It is expected that the works of students will be their original research or reasoning. The absence of references to the sources used, fabrication of sources, plagiarism, interference in the work of other students are, but are not limited to, examples of possible academic dishonesty. Identifying signs of academic dishonesty in the written work of a student is grounds for its non-enrollment by the teacher, regardless of the extent of plagiarism or deception. In the case of individual independent work, essays containing at least 60% of the original text during plagiarism check are allowed for defense, essays - 70%.

**Conflict resolution.** The order and procedures for resolving conflicts related to corrupt actions, conflicts of interest, various forms of discrimination, sexual harassment, interpersonal relationships and other situations that may arise during training, as well as the rules of ethical behavior are regulated by the Code of Ethical Behavior at the National Aerospace University "Kharkiv Aviation Institute" (<https://khai.edu/ua/university/normativna-baza/ustanovchi-dokumenti/kodeks-etichnoi-povedinki/>).

## **10. Methodological support and information resources**

The discipline page is located at the following link:  
<https://mentor.khai.edu/course/view.php?id=4812>

## 11. Recommended Books

### Core Reading (Basic)

1. Balabanova, L. V., & Hermanchuk, A. M. (2024). *Logistics*: textbook. Lviv: Magnolia. — 368 p.
2. Bezuhla, L. S., Yurchenko, N. I., Ilchenko, T. V., Palchyk, I. M., & Volovyk, D. V. (2021). *Logistics*: study guide. Dnipro: Porohy. — 252 p.
3. Tarasiuk, H. M., Rudkivskyi, O. A., Rudkivska, A. Yu., & Lahuta, Ya. M. (2020). *Study guide for independent work on the discipline "Logistics" for full-time and part-time students in the field of knowledge 07 "Management and Administration"* [Electronic edition]. Zhytomyr: Zhytomyr Polytechnic State University. — 95 p.
4. Kovtsur, K. H., Ptytsia, N. V., Kochyna, A. A., & Makarichev, O. V. (2024). *Logistical aspects of interaction between modes of transport*: study guide. Kharkiv: FOP Brovin O. V. — 164 p.
5. Hryniv, N. T., Tymko, A. Yu., Nakonechna, T. V., & Lytvynenko, S. L. (2023). *City Logistics*: study guide. Kyiv: Kondor. — 184 p.
6. Kononenko, A. V., Romanenkov, Yu. O., & Hatylo, V. P. (2019). *Logistics: study guide for practical assignments*. Kharkiv: National Aerospace University "Kharkiv Aviation Institute". — 56 p.

### Supplementary Reading (Additional)

1. Aulin, V. V., Lysenko, S. V., Hryniv, A. V., Holub, D. V., & Holovaty, A. O. (2022). *Logistics of supply for transport and production enterprises, firms, and companies*: study guide (Ed. by Prof. V. V. Aulin). Kropyvnytskyi: Publisher Lysenko V. F. — 325 p.
2. Izteleuova, M. S., Hrytsuk, I. V., Arimbekova, P. M., & Tarandushka, L. A. (2021). *Organization and Logistics of Transportation*: textbook.
3. Sokhatska, O. M., Zvarych, R. Ye., Panasiuk, V. M. et al. (2022). *International Logistics* [Electronic resource]: e-textbook (Ed. by O. M. Sokhatska). Ternopil: West Ukrainian National University (WUNU). — 373 p. URL: <http://dspace.wunu.edu.ua/handle/316497/48109>
4. Boichenko, M. V. (2021). Green logistics of freight transportation: problems and solutions. *Bulletin of Economic Science of Ukraine*, 2(41), 152–155. URL: <http://dspace.nbu.gov.ua/handle/123456789/183650>
5. Hatylo, V. P. (2025). Logistics management of sustainable development: implementation of ESG strategies in logistics processes. *Journal of Economic Reforms*, 2(58), 144–153.

### Online Resources

1. Verkhovna Rada of Ukraine (Official portal of the Parliament): <http://www.rada.gov.ua/>
2. Legislation of Ukraine: <http://zakon.rada.gov.ua/>
3. Cabinet of Ministers of Ukraine: <http://www.kmu.gov.ua/>
4. Ministry of Education and Science of Ukraine: <http://www.mon.gov.ua/>
5. Google Books: <http://www.books.google.com.ua/>
6. The World Bank: <http://www.worldbank.org/>
7. State Statistics Service of Ukraine: <http://www.ukrstat.gov.ua/>
8. Ukrainian Logistics Association (ULA): [ula-online.org](http://ula-online.org)
9. Journal of Economic Reforms (Official Scientific Page): <http://nti.khai.edu/ojs/index.php/cher/index>