МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ
ІМЕНІ СЕМЕНА КУЗНЕЦЯ

ЗАТВЕРДЖЕНО
на засіданні кафедри
менеджменту, логістики та інновацій
Протокол № 1 від 31.08.2025 р.

ПОГОДЖЕНО
Проректор з навчально-методичної роботи

Карина НЕМАШКАЛО

СМАРТ логістика
робоча програма навчальної дисципліни (РПНД)

Галузь знань	**всі**
Спеціальність	**всі**
Освітній рівень	**перший (бакалаврський)**
Освітня програма	**всі**

Статус дисципліни	**вибіркова**
Мова викладання, навчання та оцінювання	**англійська**

Розробники:

Викладач _____ **Микита БУДРЕЙКО**

К.е.н., доцент **Підписано КЕП** **Тетяна КОЛОДІЗЄВА**

Завідувач кафедри
менеджменту, логістики
та інновацій _____ **Олена ЯСТРЕМСЬКА**

Харків
2025

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

APPROVED
at the meeting of the Department
of Management, Logistics and Innovation
Protocol № 1 of 31.08.2025

AGREED
Vice-Rector for educational and methodical work

Karina NEMASHKALO

SMART Logistics
Program of the course

Field of knowledge	**all**
Specialty	**all**
Study cycle	**first (bachelor)**
Study programme	**all**
Course status	**elective**
Language	**English**

Developers:
Teacher — **Mykyta BUDREIKO**

PhD, Associate Professor — **Digitally signed** — **Tetiana KOLODIZIEVA**

Head of the Department
of Management, Logistics and
Innovations — **Olena IASTREMSKA**

Kharkiv
2025

INTRODUCTION

In logistics, the SMART approach is aimed, above all, at providing optimization of stream management by using technological, as well as information and communication tools with the intent of organizing «precise» supply chains.

«SMART Logistics» as a course is aimed at familiarizing students with the terminological framework, principles and objectives of the SMART logistics, its role in development and establishment of digital markets and digital economy as a system.

The **purpose of the course** is development of theoretical knowledge and practical skills in future specialists concerning implementation of logistical SMART technologies, SMART systems, management of logistical SMART objects.

The **object of the course** is the process of implementing logistical SMART technologies, designing logistical SMART systems, and managing logistical SMART objects.

The **subject of the course** is theoretical, methodological, and practical aspects of logistical process and system intellectualization.

The **objectives of the course** are as follows:

learning the SMART logistics concept, its components, functions, and tasks at various levels of economy;

introduction to basics of state regulation, norms, and standards of SMART logistics;

learning and characterization of the principal functional areas of SMART logistics;

studying the specifics of SMART logistics in terms of key logistical activities;

learning main logistical SMART technologies;

learning the basics of logistical SMART system design;

analysis of the SMART logistics infrastructure objects.

The learning outcomes and competencies formed by the course are defined in table 1.

Table 1

Learning outcomes and competencies formed by the course

Learning outcomes	Competencies
To demonstrate issue identification and management decision justification skills.	The ability to determine an organization's development prospects.
To apply the logistical approach to organizations' resource management and to facilitate improvement of their competitiveness. To demonstrate the skills for optimizing organizational and technological aspects of logistics' principal functions using communication and informational support.	The ability to provide organizational, technological, technical, and informational support of basic logistics functions. The ability to manage an enterprise's logistical activities in the areas of production, supplies, warehousing, procurement, sales, transportation, and cargo handling.

COURSE CONTENT

Content module 1. Theoretical foundations of SMART logistics

Topic 1. Introduction to SMART logistics

Definition of SMART logistics, its components, functions, tasks, and benefits. Goals of smart logistical strategies along international freight corridors, for internal distribution and urban logistics.

Topic 2. Patterns of SMART logistics' theory and practice development

Development of the SMART logistics concept, its distinctive features and differences from traditional logistics. Evolution of logistics from «Logistics 1.0» to «Logistics 4.0». SMART logistics theory development, spread in countries of the world, main trends, and practical application prospects. Government regulation of the SMART logistics development. Non-governmental drivers of the SMART logistics development. Standards and legal regulation of SMART logistics.

Topic 3. SMART logistics functional areas

SMART logistics in the areas of customer service, transportation, warehousing, production, procurement, distribution, informational, financial, and reverse logistics. Smart supply chains.

Topic 4. Tasks and functions of SMART logistics in terms of key logistical activities

SMART approach in logistical process structure. Tasks and functions of SMART logistics in transportation and warehousing activities; in service positioning- and service provision-related activities; in wholesale and retail trade; in motor vehicle repair; in construction and industrial processing.

Content module 2. Practical aspects of SMART logistics

Topic 5. Logistical SMART technologies

Principal technologies of SMART logistics: Internet of things, unmanned vehicles, RFID, car and ride sharing, autonomous robots, virtual reality, bitcoin, blockchain, 3D printing, cloud computing, drones, Internet of vehicles, artificial intelligence, machine learning, deep learning, 5G technology, wireless network technology etc.

Topic 6. Logistical SMART system design

Logistical SMART system architecture. Logistical business systems based on the Internet of things. Structure, content, functions, design of smart logistical systems. Smart logistical systems of supply chains. Smart logistical system efficiency.

Topic 7. SMART infrastructure of logistics

Informational and financial infrastructure of SMART logistics. SMART logistics infrastructure objects: smart cities, smart stores and restaurants, smart parking, smart transport, smart water and power supply, smart buildings, smart healthcare, smart libraries, smart recycling. Smart airports, ports, and railway stations. SMART infrastructure of supply chains.

The list of practical (seminar) / laboratory studies in the course is given in table 2.

Table 2

The list of practical (seminar)) / laboratory studies

Name of the topic and/or task	Content
Topic 1. Practical task 1.	Development of SMART logistics components at macroeconomic, mesoeconomic, and microeconomic levels.
Topic 2. Laboratory task 1.	Studying SMART logistics development in various countries of the world.
Topic 3. Practical task 2.	Analysis of practical SMART logistics solutions.
Topic 4. Laboratory task 2.	SMART approach-based design of logistical processes.
Topic 5. Practical task 3.	SWOT analysis of key SMART logistics technologies' implementation.
Topic 6. Laboratory task 3.	Development of a logistical SMART system project.
Topic 7. Practical task 4.	Efficiency analysis of SMART logistics infrastructure objects.

The list of self-studies in the course is given in table 3.

Table 3

List of self-studies

Name of the topic and/or task	Content
Topic 1 – 7	Study of lecture materials, legislative and regulatory acts
Topic 1 – 7	Formalization of laboratory and practical tasks
Topic 1 – 7	Writing of a research paper
Topic 1 – 7	Preparation for control tests

The number of hours of lectures, practical (seminar) studies and hours of self-study is given in the technological card of the course.

TEACHING METHODS

In the process of teaching the course, in order to acquire certain learning outcomes, to activate the educational process, it is envisaged to use such teaching methods as:

Verbal: lecture (topic 1 – 6), problem lecture (topic 7).

Illustrative (demonstration (topic 1 – 7)).

Laboratory work (laboratory tasks (topics 2, 4, 6), practical tasks (topics 1, 3, 5, 7), research paper (topics 1 – 7).

FORMS AND METHODS OF ASSESSMENT

The University uses a 100-point cumulative system for assessing the learning outcomes of students.

Current control is carried out during lectures, practical, laboratory and seminar classes and is aimed at checking the level of readiness of the student to perform a specific job and is evaluated by the amount of points scored:

− for courses with a form of semester control as grading: maximum amount is 100 points; minimum amount required is 60 points.

The final control includes current control and assessment of the student.

Semester control is carried out in the form of a semester exam or grading.

The final grade in the course is determined:

− for disciplines with a form of grading, the final grade is the amount of all points received during the current control

During the teaching of the course, the following control measures are used:

Current control: test surveys on lecture topics (10 points), written control test (20 points), research paper (10 points), homework completion (60 points).

Semester control: Grading.

More detailed information on the assessment system is provided in technological card of the course.

RECOMMENDED LITERATURE

Main

1. M. Hryhorak. Intelektualizatsiia rynku lohistychnykh posluh: kontseptsiia, metodolohiia, kompetentnist: monohrafiia [Intellectualization of the Logistics Services Market: Concept, Methodology, Competence: A Monograph]. Kyiv, SIC Group Ukraine, 2017. – 513 p. [in Ukrainian language];

2. O. Lobashov et al. Smart Transport and Logistics for Cities: Joint Manual. Zhytomyr, Zhytomyr Polytechnic, 2021. – 612 p. [in Ukrainian language];

3. T. Kolodizieva. Upravlinnia lantsiuhamy postavok: navchalnyi posibnyk [Supply Chain Management: A Textbook]. Kharkiv, KhNEU, 2016. – 164 p. [in Ukrainian language]. URL: https://repository.hneu.edu.ua/handle/123456789/14815;

4. T. Kolodizieva, H. Rudenko. Innovatsiini tekhnolohii v lohistytsi: navchalnyi posibnyk [Innovative Technologies in Logistics: A Textbook]. Kharkiv, KhNEU, 2013. – 268 p. [in Ukrainian language]. URL: https://repository.hneu.edu.ua/handle/123456789/11973;

Additional

5. I. Fomichenko, S. Barkova. Smart Logistics: Conceptual Foundations and Development Prospects in Ukraine. *Economic Herald of the Donbas*. 2020, № 1(59). P. 63–71. DOI: https://doi.org/10.12958/1817-3772-2020-1(59)-63-71;

6. M. Szymczak. Digital Smart Logistics. Managing Supply Chain 4.0: Concepts, Components and Strategic Perspective. *Strategic Management in an International Environment: The New Challenges for International Business and Logistics in the Age of Industry 4.0:* Proceedings of the 15th International Strategic Management Conference (ISMC 2019), 27-29 June, 2019, Poznan, Poland. Poznan, Poland: Future Academy, 2019. P. 356–368- DOI: https://doi.org/10.15405/epsbs.2019.10.02.33.

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8. I. Dembinska. Smart Logistics in The Evolution of The Logistics. *European Journal of Service Management*. 2018, Vol. 27(2). P. 123–133. DOI: https://doi.org/10.18276/ejsm.2018.27/2-15;

9. J. Korczak, K. Kijewska. Smart Logistics in the development of Smart Cities. *Transportation Research Procedia*. 2019, Vol. 39. P. 201-211. DOI: https://doi.org/10.1016/j.trpro.2019.06.022;

10. T. Kolodizieva et al. Assessment of logistics service quality based on the application of fuzzy methods modeling. *Problems and Perspectives in Management*. 2022, Vol. 20(3). P. 552-576. DOI: http://dx.doi.org/10.21511/ppm.20(3).2022.44;

11. X. Wu et al. Concept and Key Technologies of Intelligent Logistics. *Journal of Physics: Conference Series*. 2020, Vol. 1646. DOI: https://doi.org/10.1088/1742-6596/1646/1/012092.

Information resources

12. What is Smart Logistics? Benefits, Solutions & Strategies. *Academy for International Modern Studies (AIMS)*. URL: https://aims.education/smart-logistics-and-smart-logistics-solutions/

13. “SMART Logistics” course. *S. Kuznets KhNUE Personal Learning Systems*. URL: https://pns.hneu.edu.ua;