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

ЗАТВЕРДЖЕНО
на засіданні кафедри
міжнародної економіки і менеджменту
Протокол № 1 від 28.08.2023 р.

ПОГОДЖЕНО
Проректор з навчально-методичної роботи

_____ Каріна НЕМАШКАЛО

ЦИФРОВА ЕКОНОМІКА ТА ТЕХНОЛОГІЧНІ ТРЕНДИ

робоча програма навчальної дисципліни (РПНД)

Галузь знань	**05 «Соціальні та поведінкові науки»**
Спеціальність	**051 «Економіка»**
Освітній рівень	**другий (магістерський)**
Освітня програма	**Міжнародна економіка**

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

Розробник:
д.е.н., професор _____ Надія ПРОСКУРНІНА

Завідувач кафедри
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менеджменту _____ Надія ПРОСКУРНІНА

Гарант програми _____ Людмила ПІДДУБНА

Харків
2023

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
Simon Kuznets Kharkiv University of Economics

APPROVED
at the meeting of the department
of International Economics and Management
Minutes № 1, dated 28.08.2023

AGREED
Vice-rector for educational and methodical work
_____ Karina NEMASHKALO

DIGITAL ECONOMY AND TECHNOLOGICAL TRENDS

the work program of the academic disciplines

Branch of knowledge	**05 «Social and behavioral sciences»**
Specialty	**051 «Economy»**
Educational Level	**Second (Master's)**
Educational Program	**International Economics**

Status of discipline	**Elective**
The language of teaching, learning and rating	**English**

Developer:
Doctor of Economics,
professor _____ Nadiiya PROSKURNINA

Head of Department
of International Economics
and Management _____ Nadiia PROSKURNINA

Guarantor of the program _____ Lyudmila PODDUBNA

Kharkiv
2023

INTRODUCTION

The modern world cannot be imagined without digital technologies, products and services, which are key innovations in the modern socio-economic environment and influence people's way of life and their perception of the world. Modern man lives in an informational environment, where the acquisition of new knowledge, its creation and access to relevant resources have become the most important tasks of society and the state, because knowledge is the main driving force of the digital economy. It is knowledge that forms the latest trends and methods of interaction in the modern global business environment.

The development of digital technologies opens up new opportunities for increasing productivity, improving the management of public affairs and meeting the needs of the population. A key process in this context is investing in digital technologies for profit, known as digital capitalization.

The purpose of the academic discipline is to provide students with theoretical and practical knowledge in the field of organization and business management at the international level in the context of digitalization processes.

The task of the educational discipline is the purposeful formation of future specialists in the knowledge and professional competences necessary for the management of economic objects in the process of their digitalization, and the introduction of digital technologies in the sectors of industry, business and public administration to increase their efficiency, competitiveness, ensuring sustainable national development, the growth of production volumes of high-tech products and the well-being of the population of Ukraine.

The object of study of the discipline is the processes of digitalization of socio-economic life.

The subject of the study of the discipline is the prerequisites, imperatives and organizational and economic models of the transformation of social and economic life under the influence of global digitalization, taking into account technological trends.

The results of training and competence formed by the educational discipline are defined in the table. 1.

Table 1

Learning outcomes of training and competences formed by the educational discipline

Learning outcomes	Competences that must be mastered by a student of higher education
LO1	GC1, GC2
LO4	GC2, SC1
LO8	GC8, SC5
LO9	GC7
LO10	SC4
LO11	SC7
LO12	SC3
LO14	SC5
LO15	SC3

where: GC1. The ability to generate new ideas (creativity).

GC2. The ability to abstract thinking, analysis and synthesis.

GC7. The ability to act on the basis of ethical considerations (motives).

GC8. The ability conduct research at the appropriate level.

SC1. The ability to apply scientific, analytical, methodical tools to substantiate the strategy of development of economic entities and related management decisions.

SC3. The ability to collect, analyze and process statistical data, scientific and analytical materials, which are necessary for solving complex economic problems, to draw reasonable conclusions based on them.

SC4. The ability to use modern information technologies, methods and techniques for the study of economic and social processes, adequate to the established research needs.

SC5. The ability to identify key trends in socio-economic and human development.

SC7. The ability to substantiate management decisions regarding the effective development of economic entities.

LO1. Formulate, analyze and synthesize solutions to scientific and practical problems.

LO4. Develop socio-economic projects and a system of complex actions for their implementation, taking into account their goals, expected socio-economic consequences, risks, legislative, resource and other restrictions.

LO8. Collect, process and analyze statistical data, scientific and analytical materials necessary for solving complex economic tasks.

LO9. Make effective decisions under uncertain conditions and requirements that require the use of new approaches, methods and tools of socio-economic research.

LO10. Apply modern information technologies and specialized software in socio-economic research and in the management of socio-economic systems.

LO11. Determine and critically evaluate the state and trends of socio-economic development, form and analyze models of economic systems and processes.

LO12. To substantiate management decisions regarding the effective development of economic entities, taking into account goals, resources, limitations and risks.

LO14. Develop scenarios and strategies for the development of socio-economic systems.

LO15. Organize the development and implementation of socio-economic projects, taking into account information, methodical, material, financial and personnel support.

PROGRAM OF THE ACADEMIC DISCIPLINE

Content of the academic discipline

Content module 1. Theoretical foundations of the digital economy. Basic indicators and concepts.

Topic 1. Theoretical foundations of the transformation of the real economy into a digital economy.

The essence of the digital economy. Features of the digital economy. Content and definition of the digital economy. Problems of the digital economy. Digital infrastructure. The impact of digitization on economic processes and the emergence of new business models.

Topic 2. Factors affecting the quality of life in the conditions of digitalization of society.

The essence of technologies of digital transformation of the economy. The "four pillars of the third platform" are cloud, mobility, social networks and "big data", as well as a number of others, including SDN/NFV, IoT, 3D printing, unmanned vehicles, "digital doubles". Technologies 1 G - 5G. Powerful data analysis systems. "Consumerization" of Big Data technologies, "Big Data from the cloud" services, development of the "Data-as-a-Service" direction. Blockchain.

Topic 3. The main indicators of the development of the digital economy and its participants.

Implementation of digital technologies as a driver of economic growth. Scientific spheres of economy. Investments in digital technologies. Implementation of digital technologies and changes in requirements for competences and skills of employees. Tendencies of digitization of education and science.

Topic 4. Digital ecosystem - digital information and communications of society.

Content and structure of the digital ecosystem. Digital ecosystem of investment activity. Digital ecosystem of the industrial sector. Features of "Blue Ocean". State policy for the development of the digital ecosystem of Ukraine.

Topic 5. The fourth industrial revolution (Industry 4.0) and global digital trends.

The concept of the Fourth Industrial Revolution. Content and features of Industry 4.0. Historical progress of the term "Industry 4.0". Features of the implementation of the concept of Industry 4.0. The impact of Industry 4.0 on the economy of countries. Problems of Ukrainian business in terms of competitiveness in the conditions of Industry 4.0. Prospects of Ukraine in Industry 4.0.

Content module 2. Development of NTP and digital transformations of the economy.

Topic 6. Digitization of global economic processes.

Prerequisites of digitalization of business and digital transformations. Contradiction of the effects of digitization of the global business environment and digital transformations of modern times. Digitization of state policy and management.

Topic 7. Marketing methods and strategies in the digital economy.

Definition of digital strategy, classification of marketing digital strategy tools, different approaches to their use and the step-by-step process of forming a marketing digital strategy. Marketing in social networks, online advertising (Online Advertising), contextual advertising, web analytics (Web-Analytics).

Topic 8. Big Data and management decision-making.

Content of Big Data. "Big data" as a source of information. Big data processing and analysis tools. Big data is a source of statistical information: on the example of the book publishing industry. Big data in business: opportunities and threats. The relevance of using the Big Data model in business processes.

Topic 9. Opportunities and potential of technologies in the digital economy.

Risks of the transition to the Gig economy. Specific risks of the digital economy. The role of the state in promoting investments in the conditions of the digital economy. The role of the state in the formation and development of the digital economy.

Topic 10. Ukraine in the global digital environment.

Digital economy of Ukraine: main factors of development. Integration of Ukraine into the digital space of the EU: problems and prospects.

The list of practical (seminar) and/or laboratory classes/tasks by academic discipline is given in the table 2.

Table 2

List of practical (seminar) and/or laboratory classes/tasks

Name of the topic and / or task	Content
Topic 1. Task 1.	Research of the genesis, prerequisites and essence of transformation processes in the economy, identification of the economic nature of modern digital transformations.
Topic 2. Task 2.	Analysis of the essence of the concepts "digital economy" and "technological trends" in modern conditions. Overview of digital tools for improving the quality of life. Study of methods of measuring the economic contribution of digitization.
Topic 3. Task 3.	Study of knowledge-intensive spheres of the economy, investment flows

Name of the topic and / or task	Content
	in digital technologies. The influence of digital technologies on changes in the requirements for competences and skills of employees. Analysis of the trend of digitization of education and science.
Topic 4. Task 4.	Researching ecosystems of various spheres of activity. Analysis of the regulatory framework for digitalization in Ukraine.
Topic 5. Task 5.	Study of the problems of Ukrainian business and Ukraine in terms of competitiveness in the conditions of Industry 4.0.
Topic 6. Task 6.	Analysis and study of digitalization policies in the sphere of public administration in the world.
Topic 7. Task 7.	Analyzing the use of key digital marketing strategies and metrics.
Topic 8. Task 8.	Analysis of the role of Big Data in information technology. Study of methods and technologies of data analysis and visualization.
Topic 9. Task 9.	Overview of state programs for the development of investments in the digital sphere and in the sphere of digitalization of public administration.
Topic 10. Task 10.	Key initiatives regarding digitalization of global markets and analysis of the possibility of adapting the learned experience for Ukrainian companies. The state of digitization in Ukraine.

The list of independent work by academic discipline is given in the table. 3.

Table 3

List of independent work

Name of the topic and / or task	Content
Topic 1 – 10	Study of lecture material, normative bases of Ukraine and the EU in the field of digitization
Topic 1 – 10	Preparation for practical classes
Topic 4, 8 – 10	Essay writing
Topic 2, 3	Performance of individual educational and practical tasks
Topic 1 – 10	Preparation for the exam

The number of hours of lectures, practical (seminar) and/or laboratory classes and hours of independent work are given in the work plan (technological map) for the academic discipline.

TEACHING METHODS

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

Problem lecture (Topic 1, 3-5), lecture-dialogue (Topic 2, 4, 9, 10)).

In person (demonstration (Topic 1 – 10)).

Practical (individual educational and research tasks (Topic 2-3), essay (Topic 4, 8 – 10), case-method (Topic 3, 5, 6, 9, 10)).

ASSESSMENT FORMS AND METHODS

Simon Kuznets Kharkiv National University of Economics uses a cumulative (100-point) rating system.

Current control is carried out during lecture, practical, laboratory and seminar classes and has the purpose of checking the level of preparedness of the student of higher education for the performance of specific work and is evaluated by the sum of points scored:

− for disciplines with a form of semester control examination (exam): the maximum amount is 60 points; the minimum amount that allows a student of higher education to pass an exam is 35 points.

The final control includes the semester control and certification of the student of higher education.

Semester control is conducted in the form of a semester exam (exam). The semester exam (exam) is taken during the exam session.

The maximum number of points that a student of higher education can receive during the examination (examination) is 40 points. The minimum amount for which the exam is considered passed is 25 points.

The final grade by academic discipline is determined by summation of points for current and final control.

During the teaching of the academic discipline, the following control measures are used:

Current control: Individual educational and research tasks (25 points), written control work (10 points), colloquium (20 points), essay (5 points).

Semester control: Exam (40 points) 7

More detailed information about the evaluation system is given in the work plan (technological map) for the academic discipline.

An example of an examination task and evaluation criteria for an academic discipline.

An example of an examination task

Simon Kuznets Kharkiv University of Economics
The second (master's) level of higher education
Specialty "Economics"
Educational program "International Economy". Semester I
Academic discipline "Digital Economy and Technological Trends"

EXAMINATION TASK No 1

Task 1 (theoretical) – 10 points.

What are the main challenges and benefits accompanying the development of the Internet of Things (IoT) in the field of business and data security?

Task 2 (test) – 20 points.

1	What is the digital economy? a) An economy where money circulates in the form of digital bills. b) Valuation of digital assets in the value of goods and services. c) Transformation of society and economy thanks to digital technologies.
2	Which of the following technologies is a component of the Internet of Things (IoT)? a) Artificial intelligence (AI). b) Blockchain (Blockchain). c) Communication with a large number of physical objects via the Internet.
3	What is "artificial intelligence"? a) People who study computers. b) Intelligent programs capable of performing tasks that normally require human intelligence. c) Information technology experts
4	What is the main idea behind blockchain technology? a) Centralized data storage. b) A distributed and secure system for storing and sharing data. c) Social network.
5	What does the term "Big data" mean? a) Large amounts of data that are difficult to analyze and process. b) Data related to sports competitions. c) Small amounts of data that are easy to analyze.
6	What are the main advantages of using cloud computing? a) Increasing the amount of personal computer space. b) Increasing the speed of the Internet connection. c) Providing access to computing resources and saving data online.
7	What technology is used for wireless data exchange over a short distance between devices? a) Bluetooth. b) GPS. c) Supercomputers.
8	What is the Internet of Things (IoT)? a) A network where all devices have access to the Internet. b) Transforming physical objects into "smart" devices that can communicate and exchange data over a network. c) Dedicated network for online games.
9	What technology is used to create interactive virtual worlds? a) Artificial intelligence (AI). b) Augmented Reality (AR). c) Internet of Things (IoT).
10	Which of the following technologies helps improve cyber security on the Internet? a) Artificial intelligence (AI).

	b) Big data (Big Data). c) Social networks.

Task 3 (calculation) – 5 points.

The SmartTech company is developing a new product that has the potential to become a hit in the high-tech market. Research and development costs for the product amount to 2 million euros. The product is projected to generate revenue of €1 million per year for 5 years. However, there are competitors in the market, and the probability of success of the product is 60%.

Calculate the net present value (NPV) of this project and consider whether it is worth investing in the development of this product based on the NPV.

Task 4 (calculation) – 5 points.

"Eko-Light" company produces LED lamps. They consider the possibility of automating production with the help of modern robotic systems. The cost of implementing such a system is $1 million, and it will increase production productivity by 30%.

The current annual profit from the production of LED lamps is $500,000. The cost of one robot per year is $50,000.

Task: Calculate how many years it will take for Eco-Lite to recoup the cost of automation and start making a profit on this investment.

Approved at the meeting of the Department of International Economics and Management, Minutes No ____ from «___»_____20___.

Examiner Doctor of Economics, Prof. Proskurnina N.V.

Head of department Doctor of Economics, Prof. Proskurnina N.V.

Evaluation criteria

The final marks for the exam consist of the sum of the marks for the completion of all tasks, rounded to a whole number according to the rules of mathematics. The algorithm for solving each task includes separate stages that differ in complexity, time-consumingness, and importance for solving the task. Therefore, individual tasks and stages of their solution are evaluated separately from each other as follows:

Task 1 (theoretical). (10 points)

0-10 points. Complete coverage of the content of the question, the logic of the construction of the answer.

Task 2 (test). (20 points)

For each correct test - 2 points.

Tasks 3,4 (calculations). (5 points each)

0-2 points. The task was not completed independently, contains plagiarism or was not completed at all.

2-4 points. The task was not completed in full, and when solving the task, gross errors were made that did not allow to get the correct answer.

5 points. The task is completed with proper justification of the decision, calculation formulas are given, there are no shortcomings in solving the task and the conclusions drawn.

RECOMMENDED LITERATURE

Main

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3. Kozub V. Digital transformation of trade in the context of global sustainable development of the industry / V. Kozub, N. Proskurnina // Digital transformation and technologies for sustainable development all branches of modern education, science and practice [Electronic resource]: International Scientific and Practical Conference Proceeding, January 26, 2023 / Edited by I. Zuchowski, Z. Sharlovych, O. Mandych. – Publishing house: MANS w Łomży, Lomza, Poland, 2023. – Part 2. – P. 92-96. – Access mode: http://repository.hneu.edu.ua/handle/123456789/29618

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12. Shaping Europe’s digital future. – [Electronic resource]. - Access mode: https://ec.europa.eu/digital-single-market/en