

**REAL ESTATE INVESTMENT ANALYSIS:
INTEGRATION INTO THE EDUCATIONAL PROCESS
OF SPECIALISTS IN THE FIELD OF LAND CADASTRE**

Novakovska I. O., Ishchenko N. F., Smolenska L. I.

INTRODUCTION

Investment analysis in the field of real estate is a key tool for making informed decisions regarding the management of land resources and real estate. This direction is of particular importance in the conditions of modern economic development, where the issue of effective use of land resources and rational management of real estate is the basis for ensuring a stable economy.

The educational process of training specialists in the field of land cadastre, which is key for the management of territorial resources, must overcome modern challenges in order to increase the investment attractiveness of land plots, assess the risks associated with investments in real estate and integrate innovative approaches to the management of land assets.

The integration of real estate investment analysis into the educational process allows students to gain practical skills in working with real data, understanding modern methods of real estate valuation, and applying economic and mathematical methods to predict investment returns. This contributes to the formation of competencies necessary for the development of strategies for effective land resource management taking into account the principles of sustainable development.

The purpose of the section is to highlight the main aspects of integrating real estate investment analysis into the educational process for training specialists in land cadastre, as well as identifying ways to improve the educational program to ensure a high level of professional activity.

**1. The role of investment analysis in ensuring sustainable
economic development**

Investments are an important component of the modern economy and are of great importance for its development. They play a significant role not only in increasing the income of an individual member of society, but also in the overall development of the economy. Investment analysis is a key tool for achieving sustainable economic development, as it allows you to make informed decisions about the optimal allocation of resources²⁸. In today's

²⁸ Новаковська І.О., Мединська Н.В., Бавровська Н.М. Інвестиційний аналіз: навч. посіб. Київ, 2024. 368 с.

world where economic, social and environmental challenges are becoming increasingly complex, the effectiveness of investment analysis is becoming critically important for ensuring balanced development. (Fig. 1)

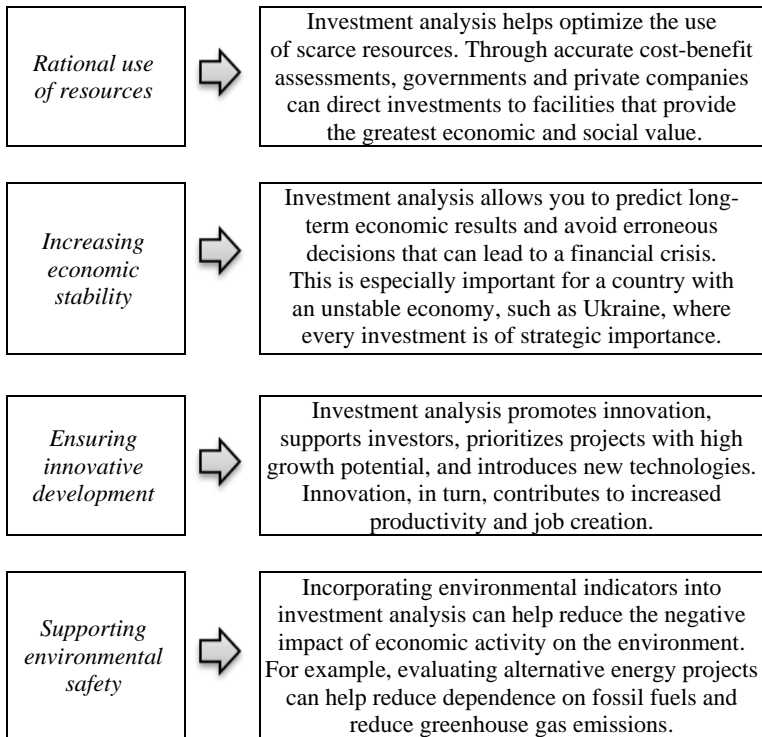


Fig. 1. Importance for sustainable economic development

Investment analysis includes assessing the effectiveness of projects, predicting risks, and justifying the feasibility of financial investments. Its main goal is to maximize economic returns while minimizing risks and negative environmental impacts. In the context of sustainable development, investment analysis takes into account not only financial indicators, but also social and environmental aspects, which allows integrating the principles of sustainability into economic planning²⁹.

Investment can take various forms, such as purchasing real estate or works of art with the expectation of further growth in their value, in order to

²⁹ Новаковська І.О., Медінська Н.В., Бавровська Н.М. Інвестиційний аналіз: навч. посіб. Київ, 2024. 368 с.

then sell them at a profit. Real estate has always been considered one of the most stable and reliable types of investment. It is the basis of economic development and an important element of any portfolio strategy. However, successful investment in real estate requires a deep understanding of market trends, financial indicators, and asset management strategies^{30 31}.

The formation in Ukraine of an economic system based on a variety of forms of ownership and the dominance of market mechanisms of self-regulation of economic processes creates conditions for a significant expansion of investment activity, which inevitably involves real estate in the market turnover – the fundamental basis of legal and economic relations of the market economic system as a whole. At the same time, the economy of Ukraine has been overcoming significant challenges in recent decades, which in turn worsens the country's investment climate in all areas.

Thus, according to the data set out in the Resolution of the Cabinet of Ministers of Ukraine “On Approval of the State Strategy for Regional Development for 2021-2027”, “the temporary occupation by the Russian Federation of the territory of the Autonomous Republic of Crimea and the city of Sevastopol in 2014 caused a number of significant structural shifts in the national economy, in particular the South of Ukraine, and had a significant impact on the national economy as a whole. In 2014, 2 million people were affected by the temporary occupation (4.3 percent of the population of Ukraine, of which 966.2 thousand people are economically active), 3 percent of the gross domestic product was removed from the national economy. According to the calculations of the Ministry of Justice, the amount of direct losses in the form of loss of assets caused by the temporary occupation amounted to (in 2013 prices) 950 billion hryvnias”³².

In 2020, the list of challenges was supplemented by a difficult epidemiological situation in the world associated with the spread of the acute respiratory disease COVID-19, caused by the SARS-CoV-2 coronavirus, which caused a slowdown in the development of the world economy, a fall

³⁰ Новаковська І.О., Іщенко Н.Ф., Скрипник Л.Р., Стецюк М.П. Інвестиційні можливості на ринку нерухомості в контексті глобальних тенденцій. *Наукові інновації та передові технології*. 2023. № 7(21). С. 130–142. DOI: [https://doi.org/10.52058/2786-5274-2023-7\(21\)](https://doi.org/10.52058/2786-5274-2023-7(21)).

³¹ Новаковська І.О., Іщенко Н.Ф., Ковальчук Є.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. Київський економічний науковий журнал. 2024. № 4. С. 164–171. DOI [10.32782/2786-765X/2024-4-23](https://doi.org/10.32782/2786-765X/2024-4-23)

³² Про затвердження Державної стратегії регіонального розвитку на 2021–2027 роки: Закон України від 05 серпня 2020 р. / Верховна Рада України. URL: <https://zakon.rada.gov.ua/laws/show/695-2020-%D0%BF#Text> (дата звернення: 26.11.2024).

in world prices for basic goods exported by Ukraine, currency devaluation, and stress on the global financial market (Fig. 2): a fall in gross domestic product – 4.8 percent, inflation – 11.6 percent; unemployment rate – 9.4 percent; a fall in the average wage – 4.5 percent to 10,700 hryvnias; a fall in exports – 5.5 percent, a fall in imports – 10 percent. It is currently quite difficult to accurately assess the duration, further spread, and consequences of the impact of negative processes on the development of regions³³.

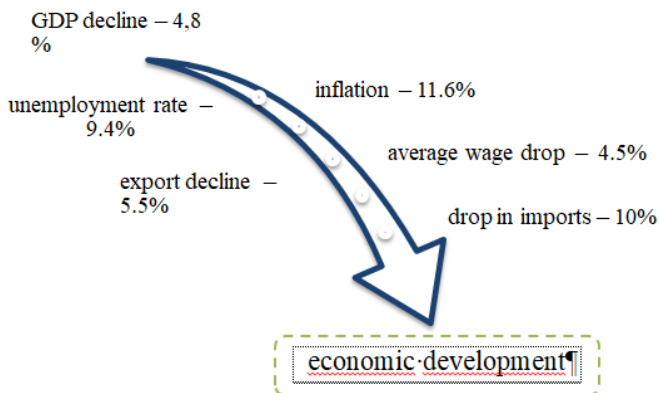


Fig. 2. Economic development challenges associated with the spread of COVID-19 (for 2020)

New challenges for economic development were also caused by the full-scale war (24.02.2022). According to the World Bank, the cost of restoring Ukraine as a modern economy after the unprovoked Russian war will cost more than \$400 billion^{34,35,36}. According to the Ministry of Economy, the gross domestic product of our country in 2022 decreased by 30.4 percent. The key factor for successful economic recovery will be the maximum

³³ Новаковська І.О., Мединська Н.В., Бавровська Н.М. Інвестиційний аналіз: навч. посіб. Київ, 2024. 368 с.

³⁴ New Ukraine: Stimulating Investment in Freedom, Peace, and Prosperity. USAID Economic Development, Governance, and Growth Enterprise (EDGE) Project: URL: <http://surl.li/sjnnv>

³⁵ World Bank in Ukraine: URL: <https://www.worldbank.org/uk/country/ukraine>

³⁶ Новаковська І.О., Бавровська Н.М., Іванченко В.А. Перспективи інвестиційної привабливості України в умовах повоєнного відновлення. Актуальні питання у сучасній науці. 2024. № 5(23). С. 137–149. DOI: [https://doi.org/10.52058/2786-6300-2024-5\(23\)-137-149](https://doi.org/10.52058/2786-6300-2024-5(23)-137-149)

involvement of the private sector and international capital in all aspects of investment and reconstruction, with reconstruction being carried out to the maximum extent at the expense of private investment and public-private partnership. The Reform Program for Stimulating Investment, the purpose of which is to stimulate a significant amount of investment for the restoration of Ukraine, indicates priority areas of reform that will contribute to the mobilization of international investment capital for the implementation of this undertaking (Fig. 3).

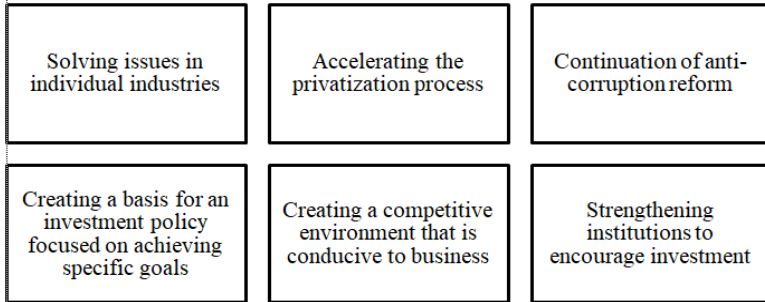


Fig. 3. Priority areas of reform under the Investment Promotion Reform Program

Most countries seek to attract foreign direct investment and increase benefits: capital investment, annual direct contributions to the economy, new jobs, exports, acquisition of new skills and technologies, and innovative sectors³⁷.

Ukraine has historically not developed as well as its neighbors (see chart). Even when comparing the share of FDI in GDP, Ukraine lags significantly behind neighboring countries (on average 2.9% over the past five years compared to 5.6% in Central Europe and the Baltics and well below 7.3% in Serbia)³⁸ (Fig. 4).

The investment climate and the existing favorable business environment have a great impact on both the attractiveness of Ukraine as a whole (in terms of tax rates, labor legislation, etc.) and the barriers to entry into the country. Improving the business environment not only helps existing private investors and local companies increase their competitiveness, but also improves the country's image as a destination for private investors.

³⁷ New Ukraine: Stimulating Investment in Freedom, Peace, and Prosperity. USAID Economic Development, Governance, and Growth Enterprise (EDGE) Project: URL: <http://surl.li/sjnnv>

³⁸ Новаковська І.О., Мединська Н.В., Бавровська Н.М. Інвестиційний аналіз: навч. посіб. Київ, 2024. 368 с.

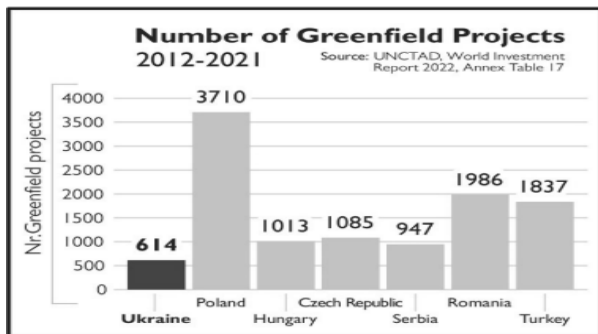


Fig. 4. Indicators of the number of announced new FDI projects by direction in Ukraine compared to competitors, 2012–2022³⁹

Significant progress has been made in recent years in improving the conditions for doing business in Ukraine, leading to an increase in the World Bank’s Ease of Doing Business ranking from 142 in 2010 to 96 in 2015 and 64 in 2020. However, most foreign investors say that there is still much room for improvement. Global attitudes have not changed either. Therefore, to attract private investors and increase competitiveness, Ukraine needs to strengthen the rule of law, ensure legal protection of investors and property rights, streamline regulatory and administrative requirements and bring them into line with international/EU standards to reduce transaction costs^{40 41} (Fig. 5).

The restoration and modernization of Ukraine’s economic and social infrastructure will:

- increase economic security, efficiency, and competitiveness;
- ensure energy independence;
- facilitate trade and transit;
- improve logistics operations;
- promote private sector development and economic growth⁴²

³⁹ World Bank in Ukraine: website. URL: <https://www.worldbank.org/uk/country/ukraine>

⁴⁰ Новаковська І.О., Мединська Н.В., Бавровська Н.М. Інвестиційний аналіз: навч. посіб. Київ, 2024. 368 с.

⁴¹ New Ukraine: Stimulating Investment in Freedom, Peace, and Prosperity. USAID Economic Development, Governance, and Growth Enterprise (EDGE) Project: URL: <http://surl.li/sjnnv>

⁴² Новаковська І.О., Бавровська Н.М., Іванченко В.А. Перспективи інвестиційної привабливості України в умовах повоєнного відновлення. *Актуальні питання у сучасній науці*. 2024. № 5(23). С. 137–149. DOI: [https://doi.org/10.52058/2786-6300-2024-5\(23\)-137-149](https://doi.org/10.52058/2786-6300-2024-5(23)-137-149)

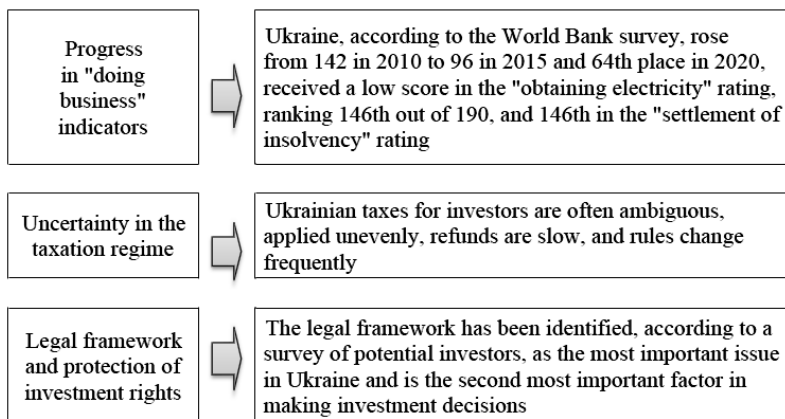


Fig. 5. Main obstacles to attracting foreign investors⁴³

This will require large-scale investments of all types – private, public and public-private. To do this, Ukraine must address a wide range of issues with the existing legal and institutional framework governing capital investment projects (CIP) and create the appropriate capacity, ensuring fair and competitive conditions for obtaining contracts⁴⁴.

Thus, investment is a key factor for economic development, as it contributes to increased production, increased efficiency and competitiveness, improved living standards and the development of new sectors of the economy. However, the problem of reliably assessing the effectiveness of investment and construction projects is relevant both for the owner, in terms of the effectiveness of investment management, and for potential investors, in terms of investment planning^{45 46}.

⁴³ Новаковська І.О., Іщенко Н.Ф., Ковальчук Є.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. *Київський економічний науковий журнал*. 2024. № 4. С. 164-171. DOI 10.32782/2786-765X/2024-4-23

⁴⁴ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. *Наукові інновації та передові технології*. 2023. № 5(19).С. 123–133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

⁴⁵ Bereza, O., Novakovska, I., Bavrovska, N&Polishchuk, S. (2024). Efficient land use in megacities: global approaches and experience of Ukrainian cities. *Moderní aspekty vědy: XLIX. Díl mezinárodní kolektivní monografie / Mezinárodní Ekonomický Institut s.r.o.. Česká republika: Mezinárodní Ekonomický Institut s.r.o., str. 420–453. <https://doi.org/10.52058/49-2024>. [in Ukrainian]*

In addition, since the real estate market is highly fragmented and distributed around the world, collecting information can be a difficult task, and the information that is available can often be heterogeneous, unsystematic and biased, which can lead to inaccuracies in the analysis⁴⁷.

An error in assessing the effectiveness of investment projects can lead to significant financial losses and risks, since the cash flows from the project implementation occur over a number of years and affect the economic potential and results of economic activity^{48 49}.

Another problem is the difficulty of determining the market value of real estate, which depends on many factors, such as location, condition of the building, competition in the market, economic conditions, etc. Estimating market value can be very difficult, especially for real estate that is under development or is in unusual conditions⁵⁰.

It should be noted that the real estate market is very dynamic, and, accordingly, changes occur quite quickly^{51 52}. Investors need to be able to react to these changes in a timely manner and take them into account in their investment strategy. However, this process can be a difficult task. Therefore, the main elements of training for specialists in the field of real estate investment are knowledge of the real estate market, assessment of risks and returns, financial analysis and planning. Specialists must have in-depth knowledge of the real estate market, be able to analyze its condition and predict its changes.

⁴⁶ Новаковська І.О., Бавровська Н.М. Трансформація земельно-кадастрового обліку кількості та якості земель в Україні в умовах повоєнного відновлення. Землеустрій, кадастр і моніторинг земель. 2023. № 2. С. 51–63. DOI: <http://dx.doi.org/10.31548/zemleustriy2023.02.05>

⁴⁷ Новаковська І.О., Іщенко Н.Ф., Ковальчук Є.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. Київський економічний науковий журнал. 2024. № 4. С. 164–171. DOI 10.32782/2786-765X/2024-4-23

⁴⁸ Новаковська І., Тихенко О. Методичні рекомендації для виконання курсового проекту з дисципліни «Земельний кадастр». К.: 2023. 96 с.

⁴⁹ Новаковська І.О., Бавровська Н.М., Іщенко Н.Ф. Методичні рекомендації для виконання практичних робіт з дисципліни «Інвестиційний аналіз». К.: 2023. 160 с.

⁵⁰ The real estate market during the war: new realities, challenges and revival. URL: <https://www.epravda.com.ua/columns/2022/05/11/686917/>

⁵¹ Novakovska, I., & Gunko, L. (2024) Conceptual principles of land protection in context sustainable development. Kyiv. 288 p.

⁵² Новаковська І. О. Сучасні проблеми землевпорядної освіти. Роль соціального та емоційного інтелекту як найважливіших soft-skills XXI століття в освітньому процесі: матеріали Всеукраїнського науково-педагогічного підвищення кваліфікації. (Одеса: 6 березня – 16 квітня 2023). Одеса, 2023. С. 304–307

Therefore, the study of investment analysis in the field of real estate is an important component of the professional competence of specialists working in the field of geodesy, land management, cadastre, land and real estate valuation, since this allows more effectively solving tasks related to assessing the value of real estate, determining its market price and predicting risks; it can provide higher education students with knowledge on choosing optimal solutions for investing in real estate.

2. The role of investment analysis in educational programs for training specialists in the field of land cadastre

The training program for real estate investment professionals should cover theoretical and practical aspects⁵³. At the beginning of the program, students should master the basic principles of investment activities, as well as understand the principles of the functioning of the real estate market^{54,55,56}. The subsequent stages of training should cover practical skills that will help students gain practical experience in real conditions.

One of the important aspects of the program should be teaching students special tools and techniques that will allow them to conduct risk analysis and effectively interact with investors. In addition, the program should include training in ethics and responsibility, since investment activities should properly take into account social and environmental requirements.

Another important aspect of training real estate investment professionals is training in communication skills. The specialist must be able to communicate effectively with investors, clients and other stakeholders to ensure the successful implementation of investment transactions and the development of projects.

⁵³ Новаковська І.О., Іщенко Н.Ф., Ковальчук Є.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. *Київський економічний науковий журнал*. 2024. № 4. С. 164–171. DOI 10.32782/2786-765X/2024-4-23

⁵⁴ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. *Наукові інновації та передові технології*. 2023. № 5(19).С.123-133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

⁵⁵ Mityaev, M., Novakovska, I., Komarova, N., & Smolenska. L. (2024). Ecological sustainability of urbanized areas: challenges and opportunities for integration into spatial planning. *Moderní aspekty vědy: XLIX. Díl mezinárodní kolektivní monografie / Mezinárodní Ekonomický Institut s.r.o.. Česká republika: Mezinárodní Ekonomický Institut s.r.o., str. 527-560.* <https://doi.org/10.52058/49-2024>

⁵⁶ Економічне відновлення та розвиток країн після збройних конфліктів і воєн: можливості, які не можна не втратити для України. URL: <https://er.dduvs.in.ua/bitstream/123456789/6678/1>

In addition to theoretical and practical training, the program should include opportunities for students to gain practical experience, for example, through internships in investment funds, real estate agencies or construction companies. This will allow students to gain practical experience in real conditions and get acquainted with the specifics of working in the industry⁵⁷.

In addition, an important aspect of training specialists in real estate investment activities is constant professional growth and training. The real estate industry is constantly developing, so specialists must be aware of the latest trends and technologies⁵⁸.

As is known, land can be a profitable investment in real estate, but this depends on a number of factors, such as location, size of the plot, purpose of the land and local market conditions, etc^{59,60}.

Therefore, the purpose of studying the discipline "Investment analysis in the field of real estate" in higher educational institutions in the specialty 193 "Geodesy and land management" is to form theoretical knowledge of the basic principles and methods of investment analysis by higher education students, acquire practical skills in the methodology for assessing the investment attractiveness of real estate, as well as make a rational choice of investment projects in the field of real estate.

The main objectives of studying the discipline "Investment Analysis in Real Estate" are:

- formation of theoretical foundations of investment analysis in real estate, in particular: concepts, terms, methods and tools used in the analysis process;
- familiarization with the main financial indicators used in investment analysis in real estate;
- analysis of methods and approaches to assessing risks associated with investing in real estate, as well as the formation of skills to manage these risks;

⁵⁷ Новаковська І.О., Іщенко Н.Ф., Ковальчук Є.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. *Київський економічний науковий журнал*. 2024. № 4. С. 164–171. DOI 10.32782/2786-765X/2024-4-23

⁵⁸ Дорош Й.М., Мартин А.Г., Новаковська І.О. Розвиток землевпорядної науки в Україні: історія, сучасність, перспективи. *Вісник аграрної науки*. 2021. № 4 (99). С. 67-76. DOI: <https://doi.org/10.31073/agrovisnyk202104-09>

⁵⁹ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. *Наукові інновації та передові технології*. 2023. № 5(19). С. 123–133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

⁶⁰ Новаковська І.О., Гулько Л.А., Долинський І.М. Наукові засади сталого розвитку міського землекористування: монографія. Київ: Видавничий центр НУБіП України, 2023. 243 с.

- familiarization with issues related to financing investment projects in real estate, including the study of various sources of financing and their advantages and disadvantages;
- acquisition of practical skills in using investment analysis in real estate;
- development of communication and analytical skills necessary for teamwork and effective solution of complex tasks and problems that arise in the process of investment analysis in real estate;
- understanding the importance of creating an effective real estate management strategy, including developing a strategy to increase revenues and reduce costs, improve the quality of real estate management, ensure the effective use of resources, etc.;
- familiarization with current trends and innovations in the field of investment analysis in the real estate sector;
- development of presentation skills and communication of analysis results in a clear form for various audiences, including investors, partners and other stakeholders.^{61 62 63}

A description of the academic discipline "Investment Analysis in the Real Estate Sector" is presented in Table 1.

A rather important aspect of the disciplines studied by higher education applicants is the acquisition of competencies such as:

integral competencies (IC): the ability to solve complex specialized tasks of land management, specialized tasks of land property (real estate) development through the application of investment analysis methods, the choice of investment strategies, the formation of a portfolio of investment projects to ensure the most effective use of land in the long term, the solution of relevant scientific and practical tasks;

General competencies (GC):

GC01. the ability to learn and master modern knowledge;

GC07. the ability to work autonomously;

GC08. the ability to work in a team. GC09. The ability to interpersonal interaction.

⁶¹ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. *Наукові інновації та передові технології*. 2023. № 5(19).С. 123–133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

⁶² Новаковська І.О., Іщенко Н.Ф., Ковальчук Є.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. *Київський економічний науковий журнал*. 2024. № 4. С. 164–171. DOI [10.32782/2786-765X/2024-4-23](https://doi.org/10.32782/2786-765X/2024-4-23)

⁶³ Дорош Й.М., Мартин А.Г., Новаковська І.О. Розвиток землевпорядної науки в Україні: історія, сучасність, перспективи. *Вісник аграрної науки*. 2021. № 4 (99). С. 67-76. DOI: <https://doi.org/10.31073/agrovisnyk202104-09>

Table 1

**Description of the academic discipline
“Investment analysis in real estate” [8]**

Field of knowledge, direction of training, speciality, educational and qualification level	
Field of knowledge	19– Architecture and Construction
Specialty	193– Geodesy and Land Management
Educational and qualification level	Bachelor
Characteristics of the academic discipline	
Type	Selective
Total number of hours	120
Number of ECTS credits	4
Number of content modules	2
Course project (work)	-
(if included in the working curriculum)	exam
Academic discipline indicators	
Lectures	30 hours
Practical, seminar classes	45 hours
Independent work	45 hours

GC13. the ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history, patterns of development of the subject area, its place in the general system of knowledge about nature and society, as well as in the development of society, technology and engineering, to use various types and forms of physical activity for recreation and leading a healthy lifestyle;

Special (professional, subject) competencies (SC):

SC02. Ability to apply theories, principles, methods of physical and mathematical, natural, socio-economic, engineering sciences when performing tasks in geodesy and land management.

SC03. Ability to apply regulatory and legal acts, regulatory and technical documents, reference materials in professional activities.

SC04. Ability to choose and use effective methods, technologies and equipment for carrying out professional activities in the field of geodesy and land management.

Program learning outcomes:

RN3. Communicate information, ideas, problems, solutions, own experience and reasoning to specialists and non-specialists.

RN4. Know and apply regulatory and legal acts, regulatory and technical documents, reference materials in the field of geodesy and land management and related industries in professional activities.

RN5. Apply conceptual knowledge of natural and socio-economic sciences when performing tasks in geodesy and land management.

PH9. Collect, evaluate, interpret and use geospatial data, metadata on objects of natural and man-made origin, apply statistical methods of their analysis to solve specialized tasks in the field of geodesy and land management.⁶⁴

Curriculum

Content module 1. Theoretical foundations of investment analysis

Topic 1. Theory of time value of money and its application in investments

The significance of the theory of time value of money in investments. Basic concepts: "Net present value (NPV)", "Internal rate of return (IRR)", "Discount factor". Time value of money. Advantages and disadvantages of the theory of time value of money. The significance of the theory of time value of money in investments. Prospects for using the theory of time value of money in investments

Topic 2. Methodological principles of investment: theoretical analysis and practical applications

Definition of investment and its meaning. Theoretical analysis of methodological principles of investment. Basic principles of investment. Investment models. Market analysis and selection of investment opportunities [3].

Topic 3. Financial system and its functions

Definition of "financial system". Importance and role of the financial system for the country's economy.

Functions of the financial system: ensuring financial stability, mobilization and distribution of financial resources, financial intermediation. Financial institutions. Financial technologies. The role of the state in regulating the financial system. Challenges for the financial system. Prospects for the development of the financial system.

Topic 4. Financial investment instruments: selection and effective use

Concept and general characteristics of securities. Characteristics of shares. Characteristics of bonds. Characteristics of savings certificates. Characteristics of bills. Characteristics of investment certificates. Characteristics of government securities. Characteristics of stock derivatives. Features of "green" investment with various financial instruments in the context of sustainable development. Modern features of investment in the field of housing construction.

⁶⁴ Каталог освітніх програм магістратури на 2022-2023 н.р. Том 2. URL: https://nubip.edu.ua/sites/default/files/u284/katalog_op_magistriv_2022_tom_2_sayt.pdf

Topic 5. Analysis and assessment of investment risks

The essence and classification of investment risks. Methods of assessing financial risk. Investment risk management. Assessment of investment project risks. Features of risk management in the management system of agricultural enterprises. Investment risks in the formation of territorial communities in conditions of decentralization.

Topic 6. Financial stability: saving and investing

The concept and definition of "financial stability". The importance of financial stability. Basic principles of saving funds. Investment risks and opportunities. Creating a financial plan: determining financial goals, budget allocation, investment planning.

Topic 7. Financial borrowing and lending

Definition of the terms "financial borrowing" and "lending". The importance of financial borrowing and lending for the country's economy. Types of financial borrowing. Types of loans. The process of obtaining a loan. Requirements for the debtor. Requirements for guarantors. Creditworthiness assessment. Risks and benefits of financial borrowing and lending. Loan repayment. The importance of financial borrowing and lending for economic development. Recommendations for choosing financial instruments for different needs⁶⁵.

Content module 2.

Evaluation of the effectiveness of investing in real estate

Topic 8. Defining criteria for assessing the investment attractiveness of real estate

The concept of criteria for assessing the investment attractiveness of real estate. The essence and definition of real estate. Overview of the real estate market and its potential investors. Types of criteria for assessing investment attractiveness: financial criteria, economic criteria, social criteria. Overview of different types of risks associated with real estate investments. Ways to reduce risk. Analysis of the best types of real estate investments.

Topic 9. Collection and processing of data for real estate valuation: location, characteristics and market price

Basic principles of real estate valuation. The role of data collection and processing in the valuation process. Collection of data on the location of real estate, on the characteristics of real estate, on the market price of real estate. Analysis of the real estate market. Evaluation of similar real estate. Determination of factors affecting the market price. Data processing and

⁶⁵ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. Наукові інновації та передові технології. 2023. № 5(19).С.123-133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

analysis. Data cleaning and preparation for analysis. Application of statistical analysis methods to determine the relationship between data. Use of software tools for data visualization. Real estate valuation based on the obtained data. Determination of key factors influencing the market price.

Topic 10. Data analysis methods for individual calculation of assessments by criteria for real estate objects

Introduction to real estate valuation. Definition of terms and concepts. Basic approaches to real estate valuation: market, income, cost. Basic methods of real estate valuation: data analysis methods for real estate valuation, comparison method, discounting method, confidence interval method. Real estate valuation by criteria. Assessment of the condition of the building. Assessment of location. Assessment of the market situation. Recommendations for the use of real estate valuation methods.

Topic 11. Determining the weight coefficient of criteria for assessing the investment attractiveness of real estate

The main criteria for assessing the investment attractiveness of real estate: real estate price, location, quality of construction, demand for real estate, potential income. Determining the importance of each criterion using the weight coefficient: questionnaire method; expert opinion analysis method; hierarchy analysis method. An example of determining the weight coefficient of criteria for assessing the investment attractiveness of real estate: using the hierarchy analysis method, determining criteria and subcriteria, determining the importance of each criterion using pairwise comparison.

Topic 12. Methodology for calculating the overall assessment of the investment attractiveness of real estate based on the weight coefficients of criteria weight coefficients of criteria

Criteria for selecting an investment project. Overview of criteria for assessing the investment attractiveness of real estate. Weight coefficients of criteria. Description of methods for establishing weight coefficients of criteria. Methodology for calculating the overall assessment of the investment attractiveness of a real estate based on the weight coefficients of criteria. The procedure for calculating the overall investment attractiveness assessment. An example of applying the methodology to a specific real estate property.

Topic 13. Visualization of valuation results for the convenience of investors

The value of real estate valuation for investors. Basic types of valuation: a review of the most common types of valuation, such as fundamental analysis, technical analysis, risk assessment, etc. Tools for visualizing valuation results: an overview of basic tools, such as graphs, charts, tables, tag clouds, etc., that can help investors better understand the results of the

valuation. The main types of graphs and charts that can be used to display the results of the valuation. Analysis of the visualization of risk assessment results in the context of helping investors with the risks associated with specific investment opportunities. Software tools for visualizing the results of the valuation.

Topic 14. Analysis of results and recommendations for investing in real estate: choosing the most attractive investment objects

Determining the value of interests in property-derived rights. Identifying and selecting the most attractive real estate properties for investment, including commercial, residential, and other types of real estate. Assessment of risks associated with real estate investment, including financial risks, legal risks and risks associated with real estate. Analysis of the most attractive investment objects based on the results of risk analysis and assessment. Reconciliation of real estate valuation results.

The structure of the academic discipline is presented in Table 2

Table 2

Structure of the academic discipline

Names of content modules and topics	Number of hours				
	total hours	including			
		lectures	prakt	lab	ind
Content module 1. Theoretical foundations of investment analysis					
Topic 1. The theory of the time value of money and its application in investments	9	2	4		3
Topic 2. Methodological principles of investment: theoretical analysis and practical applications	6	2	2		2
Topic 3. Financial system and its functions	9	2	4		3
Topic 4. Financial investment instruments: selection and effective use	6	2	2		2
Topic 5. Analysis and assessment of investment risks	9	2	4		3
Topic 6. Financial sustainability: saving and investing	6	2	2		2
Topic 7. Financial borrowing and lending	9	2	4		3
Modular control No. 1	5	1	-		4

Table 2 (continuance)

Together by content module 1	59	15	22			22
Content module 2. Evaluating the effectiveness of investing in real estate						
Topic 8. Determining criteria for assessing the investment attractiveness of real estate objects	9	2	4			3
Topic 9. Data collection and processing for real estate valuation: location, characteristics and market price	9	2	4			3
Topic 10. Data analysis methods for individual calculation of assessments according to criteria for real estate objects	6	2	2			2
Topic 11. Determining the weighting coefficient of criteria for assessing the investment attractiveness of real estate	9	2	4			3
Topic 12. Methodology for calculating the overall assessment of the investment attractiveness of real estate objects based on the weighting factors of the criteria weighting factors of the criteria	6	2	2			2
Topic 13. Visualization of valuation results for the convenience of investors	9	2	4			3
Topic 14. Analysis of results and recommendations for investing in real estate: choosing the most attractive investment objects	8	2	3			3
Modular control No. 2	5	1	-			4
Together by content module 2	61	15	23			23
Total hours	120	30	45			45
Course project (work) with ____ (if included in the working curriculum)		-	-	-		-
Total hours	120	30	45			45

Seminars and practical classes on real estate investment analysis are an important element of the educational process in the field of real estate and investment. The main goal of these classes is to develop practical skills in assessing the real estate market, analyzing risks and profitability

of investments, developing an investment strategy, managing real estate and developing real estate projects^{66 67}.

Seminars provide the opportunity for direct communication with the teacher and other students, which allows you to expand your knowledge and understanding of real estate investment analysis. (Table 3) During practical classes, practical exercises are conducted, where students have the opportunity to apply theoretical knowledge in practice and develop skills in working with various sources of information. (Table 4)

Table 3

Topics of seminar classes [8]

No	Topic name	Number of hours
1	Basic principles of investment analysis in real estate	2
2	Real estate valuation methods and their use in investment analysis	2
3	Market analytics and real estate market forecasting	2
4	Real estate investment strategies and their effectiveness	2
5	Analysis of risks and opportunities of investing in real estate	2
6	Portfolio approach to real estate investing	2
7	Financing of real estate construction and reconstruction projects	2
8	Assessment of investment attractiveness of real estate projects	2
9	Legal and tax aspects of investing in real estate	2
10	Interaction with the capital market in real estate investment analysis	2

The seminar and practical training course on real estate investment analysis helps students understand the complexities of real estate and the investment process, develop critical thinking and practical skills necessary for successful application in the real world.

⁶⁶ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. Наукові інновації та передові технології. 2023. № 5(19). С. 123–133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

⁶⁷ Новаковська І.О., Іщенко Н.Ф., Ковальчук Є.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. Київський економічний науковий журнал. 2024. № 4. С. 164–171. DOI 10.32782/2786-765X/2024-4-23

Table 4

Topics of practical classes

No	Topic name	Number of hours
Module 1		
1	The concept of time value of money	2
2	Determining the time value of money and its use in financial calculations	2
3	The theory of the time value of money and its consideration in investment calculations	2
4	Methodological principles of valuation of financial instruments	2
5	Investment risk management and assessment methods	2
6	Management of investment resources formation	2
7	Investment risk analysis: recommendations for minimizing them	2
8	Personal Finance Analysis: Budgeting and Expense Planning	2
9	Savings planning: drawing up a savings plan and choosing the optimal money saving strategy	2
10	Assessment of financial capabilities for obtaining a loan	2
11	Investing in education: analyzing the benefits and opportunities of investing in education	2
Module 2		
12	Research on the real estate market in Ukraine and recommendations for profitable savings and investments in this sector	2
13	Real estate investing: analysis of the benefits and risks of investing in real estate	2
14	Analysis of areas for minimizing risks of investing in real estate	2
15	Methodological principles of data collection and processing for real estate valuation	2
16	Application of analytical tools for processing real estate data and calculating its value	2
17	Using expert valuation methods to determine the value of real estate and calculate its valuations according to criteria	2
18	Determining the weighting coefficient of criteria for assessing the investment attractiveness of real estate	2
19	Visualization of valuation results for the convenience of investors	2
20	Selection of the most attractive investment objects	2
21	Analysis of results and recommendations for investing in real estate	2
22	Land investments: risks and prospects	3

Real estate investment analysis is complex and requires future investment professionals to have in-depth knowledge of the field.^{68 69} In this context, review questions and self-tests will help higher education students to check the level of knowledge gained as a result of studying the discipline “Real Estate Investment Analysis”. These tools will help them identify problem areas in their knowledge and skills and focus on improving them.

Review questions can be of various types: from open-ended questions to questions with the correct answer choice. They can cover different aspects of real estate investment analysis, such as financial analysis, risk assessment, understanding the real estate market, etc. (Fig. 6).

1. What is investment analysis and what role does it play in investing?
2. What factors should be considered when conducting an investment analysis?
3. What investment assessment methods exist?
4. What indicators are used to assess the investment attractiveness of a project?
5. What factors affect investment risk?
6. How does inflation affect investments?
7. What risks may arise when investing in stocks?
8. What is an investment portfolio and what role does it play in investing?
9. What investment strategies exist?
10. What is the capital market and how does it function?

Fig. 6 Sample test questions⁷⁰

⁶⁸ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. Наукові інновації та передові технології. 2023. № 5(19).С. 123–133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

⁶⁹ Bereza, O., Novakovska, I., Bavrovska, N&Polishchuk , S. (2024). Efficient land use in megacities: global approaches and experience of Ukrainian cities. Moderní aspekty vědy: XLIX. Díl mezinárodní kolektivní monografie / Mezinárodní Ekonomický Institut s.r.o.. Česká republika: Mezinárodní Ekonomický Institut s.r.o., str. 420-453. <https://doi.org/10.52058/49-2024> . [in Ukrainian]

⁷⁰ І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. Наукові інновації та передові технології. 2023. № 5(19).С.123-133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)

Real estate investment analysis tests may also include questions on risk assessment, financial analysis, the ability to select the most profitable real estate investments, and other aspects. (Fig. 7)

1.	What is investment analysis? a) investment analysis; b) analysis of the company's financial results; c) analysis of the securities market; d) analysis of the real estate market.
2.	What factors are taken into account when conducting investment analysis? a) political and economic factors; b) financial indicators; c) market factors; d) all answers are correct.
3.	What methods of investment valuation exist? a) discounted value method; b) mid-market price method; c) comparative valuation method; d) all answers are correct.
4.	What indicators are used to assess the investment attractiveness of a project? a) (Net Present Value) – net present value; b) IRR (Internal Rate of Return) – internal rate of return; c) PI (Profitability Index) – profitability index; d) DPP (Discounted Payback Period) – payback period taking into account the discount; e) ARR (Accounting Rate of Return) – accounting rate of return.
5.	What factors affect investment risk? a) political and economic risks; b) risks related to the company; c) market risks; d) all answers are correct.
6.	How does inflation affect investments? a) reduces their profitability; b) increases their riskiness; c) both options are correct; d) inflation does not affect investments.
7.	What risks can arise when investing in stocks? a) risk of stock price changes; b) risk of company bankruptcy; c) risk of currency fluctuations; d) all answers are correct.

Fig. 7. Examples of tests for self-testing knowledge

8.	What is an investment portfolio?
	a) risk of stock price changes;
	b) risk of company bankruptcy;
	c) risk of currency fluctuations;
	d) all answers are correct.
	d) the collection of all investments in financial instruments
9.	What investment strategies are there?
	a) balanced portfolio strategy;
	b) active management strategy;
	c) buy and hold strategy;
	d) all answers are correct.
10.	What is a capital market and how does it function?
	a) a securities market, where securities are bought and sold;
	b) a market where capital is raised to finance businesses;
	c) a market where financial instruments are traded;
	d) a market where trading takes place.

Fig. 7. (continuance)

CONCLUSIONS

The section presents research on the importance of real estate investment analysis as an important component of training specialists in the field of land cadastre and proposes a work program for training future specialists in the field of geodesy, land management, cadastre and valuation activities. Based on the analysis, it should be noted that:

1. real estate investment analysis is a key tool for assessing the economic feasibility of projects related to land and real estate, which ensures effective management of land resources and achieving their investment attractiveness;

2. is an important component of the professional competence of specialists working in the field of geodesy and land management, as it allows more effectively solving tasks related to assessing the value of real estate, its market price and forecasting risks;

3. integration of investment analysis into the educational process improves the formation of complex knowledge and skills in future specialists, possibly for assessing the value of land plots, calculating the financial efficiency of investments and analyzing risks. This allows higher education students to be provided with knowledge on choosing optimal solutions for investing in real estate, which is important knowledge for successful work in the field of geodesy and land management;

4. application of a practice-oriented approach in training, in particular the use of cases and models of real investment projects, increasing students' professional competence and their ability to adapt to the conditions of the real estate market.

5. an integrative discipline that combines knowledge of land cadastre, finance, economics and law creates a solid foundation for a comprehensive approach to solving problems in the real estate sector.

6. introduction of real estate investment analysis into the educational process allows:

- to increase the level of training of specialists, which will contribute to the development of the land resources and real estate market.
- to ensure the competitiveness of graduates in the labor market.
- to prepare qualified specialists to solve problems in the field of sustainable development of land resources;

7. can provide higher education students with the necessary knowledge to choose the best solutions for real estate investment and help develop skills in analysis and risk assessment in investment activities.

Thus, the integration of real estate investment analysis into the educational process is a step towards improving the professional training of land cadastre specialists and increasing the efficiency of land resource use in Ukraine. Given the rapid growth of the real estate market and modern challenges, this is extremely relevant.

SUMMARY

The section examines real estate investment analysis as a key element of training specialists in the field of land cadastre, geodesy, land management and real estate valuation. In particular, the role of investment analysis in ensuring the rational use of land resources, increasing their investment attractiveness and developing effective real estate management strategies is investigated. The authors note that the integration of this direction into the educational process contributes to the formation of theoretical knowledge and practical skills among students necessary for assessing the value of real estate, calculating the economic efficiency of investment projects and analyzing risks. The section describes in detail methodological approaches to implementing investment analysis in the educational process, including the development of curricula that combine theoretical knowledge with practical experience. The emphasis is on a practice-oriented approach, which involves the use of real cases, work with analytical tools, and the application of modern methods for evaluating investment projects. The main competencies that are formed in students are identified, in particular, the ability to conduct financial analysis, determine the market value of real estate, predict risks and develop optimal investment strategies.

Particular attention is paid to the impact of investment analysis on the professional training of specialists in the context of modern challenges, in particular, the growth of the real estate market, increased competition and the need to adhere to the principles of sustainable development. Ways of

improving educational programs aimed at increasing the competitiveness of graduates in the labor market, as well as the possibility of involving the latest technologies to ensure high-quality training of future specialists, are considered. The introduction of innovative approaches into the educational process allows you to create a solid foundation for the development of competencies necessary for successful activities in the field of real estate investment and land management.

BIBLIOGRAPHY

1. Новаковська І.О., Мединська Н.В., Бавровська Н.М. Інвестиційний аналіз: навч. посіб. Київ, 2024. 368 с.
2. Новаковська І.О., Іщенко Н.Ф., Скрипник Л.Р., Стецюк М.П. Інвестиційні можливості на ринку нерухомості в контексті глобальних тенденцій. *Наукові інновації та передові технології*. 2023. № 7(21). С. 130–142. DOI: [https://doi.org/10.52058/2786-5274-2023-7\(21\)](https://doi.org/10.52058/2786-5274-2023-7(21)).
3. Новаковська І.О., Іщенко Н.Ф., Ковальчук С.С., Скрипник Л.Р. Інвестиційна діяльність територіальних громад в контексті сучасних земельних відносин. *Київський економічний науковий журнал*. 2024. № 4. С. 164–171. DOI [10.32782/2786-765X/2024-4-23](https://doi.org/10.32782/2786-765X/2024-4-23)
4. Про затвердження Державної стратегії регіонального розвитку на 2021-2027 роки: Закон України від 05 серпня 2020 р. / Верховна Рада України. URL: <https://zakon.rada.gov.ua/laws/show/695-2020-%D0%BF#Text> (дата звернення: 26.11.2024).
5. New Ukraine: Stimulating Investment in Freedom, Peace, and Prosperity. USAID Economic Development, Governance, and Growth Enterprise (EDGE) Project: URL: <http://surl.li/sjnnv>
6. World Bank in Ukraine: URL: <https://www.worldbank.org/uk/country/ukraine>
7. Новаковська І.О., Бавровська Н.М., Іванченко В.А. Перспективи інвестиційної привабливості України в умовах повоєнного відновлення. *Актуальні питання у сучасній науці*. 2024. № 5(23). С. 137–149. DOI: [https://doi.org/10.52058/2786-6300-2024-5\(23\)-137-149](https://doi.org/10.52058/2786-6300-2024-5(23)-137-149)
8. І. Новаковська, Н. Іщенко, М. Стецюк. Інвестиційний аналіз нерухомості як складова професійної компетенції: підготовка фахівців. *Наукові інновації та передові технології*. 2023. № 5(19). С. 123–133. DOI: [https://doi.org/10.52058/2786-5274-2023-5\(19\)-123-133](https://doi.org/10.52058/2786-5274-2023-5(19)-123-133)
9. Bereza, O., Novakovska, I., Bavrovska, N&Polishchuk, S. (2024). Efficient land use in megacities: global approaches and experience of Ukrainian cities. *Moderní aspekty vědy: XLIX. Díl mezinárodní kolektivní monografie / Mezinárodní Ekonomický Institut s.r.o.. Česká republika: Mezinárodní Ekonomický Institut s.r.o., str. 420–453. <https://doi.org/10.52058/49-2024>. [in Ukrainian]*
10. Новаковська І.О. Бавровська Н.М. Трансформація земельно-кадастрового обліку кількості та якості земель в Україні в умовах

повоєнного відновлення. *Землеустрій, кадастр і моніторинг земель*. 2023. № 2. С. 51–63. DOI: <http://dx.doi.org/10.31548/zemleustriy2023.02.05>

11. Новаковська І., Тихенко О. Методичні рекомендації для виконання курсового проекту з дисципліни «Земельний кадастр». К.: 2023. 96 с.

12. Новаковська І.О., Бавровська Н.М., Іщенко Н.Ф. Методичні рекомендації для виконання практичних робіт з дисципліни «Інвестиційний аналіз». К. : 2023. 160 с.

13. The real estate market during the war: new realities, challenges and revival. URL: <https://www.epravda.com.ua/columns/2022/05/11/686917/>

14. Novakovska, I., & Gunko, L. (2024) Conceptual principles of land protection in context sustainable development. Kyiv. 288 p.

15. Новаковська І. О. Сучасні проблеми землевпорядної освіти. *Роль соціального та емоційного інтелекту як найважливіших soft-skills XXI століття в освітньому процесі: матеріали Всеукраїнського науково-педагогічного підвищення кваліфікації*. (Одеса: 6 березня – 16 квітня 2023). Одеса, 2023. С. 304-307

16. Новаковська І.О., Гунько Л.А., Долинський І.М. Наукові засади сталого розвитку міського землекористування: монографія. Київ: Видавничий центр НУБіП України, 2023. 243 с.

17. Mityaev, M., Novakovska, I., Komarova, N., & Smolenska. L. (2024). Ecological sustainability of urbanized areas: challenges and opportunities for integration into spatial planning. *Moderní aspekty vědy: XLIX. Díl mezinárodní kolektivní monografie / Mezinárodní Ekonomický Institut s.r.o.. Česká republika: Mezinárodní Ekonomický Institut s.r.o., str. 527-560*. <https://doi.org/10.52058/49-2024>

18. Економічне відновлення та розвиток країн після збройних конфліктів і воєн: можливості, які не можна не втратити для України. URL: <https://er.dduvs.in.ua/bitstream/123456789/6678/1>

19. Дорош Й.М., Мартин А.Г., Новаковська І.О. Розвиток землевпорядної науки в Україні: історія, сучасність, перспективи. *Вісник аграрної науки*. 2021. № .4 (99). С. 67–76. DOI: <https://doi.org/10.31073/agrovisnyk202104-09>

20. Каталог освітніх програм магістратури на 2022–2023 н.р. Том 2. URL: https://nubip.edu.ua/sites/default/files/u284/katalog_op_magistriv_2022_tom_2_sayt.pdf

Information about the authors:

Novakovska Iryna Oleksiyivna,

Doctor of Economic Sciences, professor.,

Corresponding Member of NAAS,

Professor of the Department of Land Cadastre

National University of Life and Environmental Sciences of Ukraine,

15, Heroyiv Oborony St, Kyiv, 03041, Ukraine

Ishchenko Nataliia Fedorivna,
PhD in Economics, Associate Professor,
Associate Professor at the Department of Aerospace Geodesy
and Land Management,
State University «Kyiv Aviation Institute»,
Lubomyr Husar Avenue, 1, Kyiv, 01001, Ukraine

Smolenska Lidiya Ivanivna,
Senior Lecturer at the Department of Geodesy,
Land Management and Land Cadastre
Odessa State Agrarian University
13, Panteleimonovskaya St, Odessa, 65012, Ukraine