



Syllabus Course Program



Innovative financial technologies and instruments of the stock market

Specialty

072 – Finance, banking, insurance and stock market

Institute

Institute of Management Economics and International Business

Educational program

Finance and banking

Chair

Accounting and finance (205)

Level of education

Bachelor

Type of discipline

Optional

Semester

7

Language of teaching

English

Lecturers and course developer



Oleksandr Manoylenko

oleksandr.manoylenko@khpi.edu.ua

Doctor of Economics, Professor, Professor of the Department of Accounting and Finance (NTU "KhPI")

Author of more than 250 scientific and educational publications.

Leading lecturer in the courses: "International Stock Market, Blockchain Technologies and Crypto Trading, Financial Management.

[Learn more about the teacher on the department's website](#)



Svitlana Kuznetsova

svitlana.kuznetsova@khpi.edu.ua

Candidate of Economic Sciences, Associate Professor, Associate Professor of the Department of Accounting and Finance (NTU "KhPI")

The author of more than 80 scientific and educational and methodical publications. Leading lecturer on courses: "International Financial Reporting Standards", "Accounting", "Financial Accounting I"

[Learn more about the teacher on the department's website](#)

General information

Summary

The course "Innovative financial technologies and stock market tools" is designed to provide students with an understanding of the functioning, structure and features of innovative financial technologies and stock market tools

Course objectives and goals

This course aims to familiarize students with innovative technologies used in the financial sector and their impact on the development of the stock market. Students will also gain knowledge about new financial instruments and practices that are becoming increasingly popular in today's investment environment

Format of classes

Lectures, practical classes, consultations, independent work. Individual task (Calculation task). Final control - exam.

Competences

Special (professional) competences according to the profiled package of disciplines 02 "Stock market and financial asset management" (determined by the higher education institution)

SK 13. The ability to organize the development and introduction of innovative financial technologies and stock market tools, based on knowledge of its functioning in conditions of digitalization, with subsequent effective management of financial assets based on investment analysis'

Learning outcomes

Program learning outcomes for selective block 02 "Stock market and financial asset management" (determined by the institution of higher education)

PR 25. To be able to analyze trends in the development of functional and technological components of the infrastructure of the stock market and the peculiarities of the organization of investment in innovation, to manage classic and innovative financial assets on the basis of investment analysis.

Student workload

The total scope of the discipline is 150 hours. (5 ECTS credits): lectures – 32 hours, practical activities – 32 hours, self-study – 86 hours. |

Course prerequisite

"Financial management", "Management information systems in the financial and accounting sphere". |

Features of the course, teaching and learning methods, and technologies

Problem-based lectures are one of the most important elements of problem-based learning for students. Along with the consideration of the main lecture material, they provide for the establishment and consideration of a range of problematic issues of a debatable nature, which are not sufficiently developed in science and are of actual importance for theory and practice. Lectures of a problematic nature are distinguished by an in-depth argumentation of the taught material. They contribute to the formation of independent creative thinking in students, instill cognitive skills in them. Students become participants in scientific research and problem solving. Discussions involve the exchange of opinions and views of participants on a given topic (issue), and also develop thinking, help form views and beliefs, develop the ability to formulate opinions and express them, teach to evaluate other people's proposals, to critically approach one's own views.

The case method is a method of analyzing specific situations, which makes it possible to bring the learning process closer to the real practical activities of specialists and involves consideration of problem situations in the process of studying educational material.

Presentations are speeches in front of an audience, used to present certain achievements, the results of the group's work, a report on the completion of individual tasks, project works. Presentations can be both

individual, for example, the speech of one listener, and collective, that is, the speech of two or more listeners. |

Program of educational discipline

Topics of lectures

Topic 1. Introduction to innovative financial technologies (FinTech)

Definition of FinTech. History and development of FinTech. The impact of FinTech on the financial sector.

Topic 2. Blockchain and cryptocurrency technologies

Basics of blockchain technology. Cryptocurrencies and their functioning.

Use of blockchain in financial transactions.

Topic 3. Smart contracts and decentralized finance (DeFi)

Smart contracts: concept and application. DeFi protocols and platforms. DeFi Risks and Challenges.

Topic 4. Machine learning and artificial intelligence in finance.

Using machine learning in market forecasting. Algorithmic trading and robo-consultants. Ethical issues regarding the use of artificial intelligence in the financial sector.

Topic 5. Regulation and legislation in the field of FinTech.

Global regulatory requirements for FinTech companies. Legal aspects of the use of cryptocurrencies and blockchain. The role of the government in the development of innovations in the financial sector.

Topic 6. Innovative financial instruments

Experimental and alternative investment products. Crowdfunding and crowdlending.

Financial analytics and rating agencies.

Theme 7. Trends and prospects in the field of innovative financial technologies

Forecasting the future development of FinTech. The influence of the latest technologies on the economy and society. Opportunities and challenges for financial institutions and investors.

Topics of practical classes

Topic 1. Introduction to innovative financial technologies (FinTech)

Topic 2. Blockchain and cryptocurrency technologies

Topic 3. Smart contracts and decentralized finance (DeFi)

Topic 4. Machine learning and artificial intelligence in finance.

Topic 5. Regulation and legislation in the field of FinTech.

Topic 6. Innovative financial instruments

Theme 7. Trends and prospects in the field of innovative financial technologies

Topics of laboratory works

Laboratory works within the discipline are not provided |

Self-study

The course involves the implementation of an individual calculation task containing theoretical and practical part, where the student must show knowledge, correct understanding and ability to work with information sources, analyze digital data, independently present a personal point of view, summarize theoretical and practical material, draw conclusions and proposals. |

Course materials and recommended reading

Basic literature:

1. Kravchenko P. Blokchein i detsentralizovani systemy : navch. posibnyk u 3 ch. Ch. 1 / P. Kravchenko, B. Skriabin, O. Dubinina. – Kharkiv : PROMART, 2019. – 452 s.
2. "Machine Learning for Algorithmic Trading: Predictive Models to Extract Signals from Market and Alternative Data" by Stefan Jansen (2020)

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Національний технічний університет
«Харківський політехнічний інститут»

"Artificial Intelligence in Finance: A Comprehensive Overview" edited by Bernhard Scholkopf, Petros 3. Papadopoulos, Imanol Perez Arribas, and Kristian Kersting (2019)
 4. "Regulating Blockchain: Technological Innovation and the Challenge to Law" edited by Philipp Hacker and Ioannis Lianos (2020)

Additional literature:

1. Zakon Ukrainy «Pro platizhni systemy ta perekaz koshtiv v Ukraini» vid 05.04.2001 r. za № 2346-III - <https://zakon.rada.gov.ua/laws/show/2346-14#Text>
2. Zakon Ukrainy «Pro zapobihannia ta protydiu lehalizatsii (vidmyvanniu) dokhodiv, oderzhanykh zlochynnym shliakhom, finansuvanniu teroryzmu ta finansuvanniu rozpovsiudzhennia zbroi masovoho znyschennia» vid 06.12.2019 r. za № 361-IX - <https://zakon.rada.gov.ua/laws/show/361-20#Text>
3. Zakon Ukrainy «Pro platizhni posluhy» vid 30.06.2021 r. za № 1591- IKh - <https://zakon.rada.gov.ua/laws/show/1591-20#Text>
4. Zakon Ukrainy «Pro virtualni aktyvy» vid 08.09.2021 r. (proekt)
5. Manoylenko O., Kuznetsova S. Development of digital financial instruments and their use in the activities of entities of the pharmaceutical industry of Ukraine. *Ekonomia – Wroclaw Economic Review*. 30/2 P. 77-91 (2023) <https://doi.org/10.19195/2658-1310.29.2.56>. Van Hijfte, Stijn. (2020). *Decoding Blockchain for Business: Understand the Tech and Prepare for the Blockchain Future*. 10.1007/978-1-4842-6137-8.

Assessment and grading

Criteria for assessment of student performance, and the final score structure

100% of the final grade consists of the results of the assessment in the form of: a final test - 40%; completion of an individual calculation task - 30%; completion of independent work of the student on each of the topics covered in the discipline - 30%. The exam is written and includes: 2 theoretical tasks of different levels of complexity, and 1 case study.

Grading scale

Total points	National	ECTS
90–100	Excellent	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactory	D
60–63	Satisfactory	E
35–59	Unsatisfactory (requires additional learning)	FX
1–34	Unsatisfactory (requires repetition of the course)	F

Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management.

Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: <http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/>

Approval

Approved by

Date, signature

Head of the department
 Oleksandr MANOYLENKO

Date, signature

Guarantor of the educational



program
Marina SHEVCHENKO

