Syllabus
Course Program

Financial technologies (FinTech)

Specialty

Institute
Institute of Education and Science in Economics, Management and International Business

Specialization

Department
Accounting and finance (205)

Educational program

Course type
Optional

Level of education
Second (master's level)

Form of study
Full-time

Semester
2

Language of instruction
English

Lecturers and course developers

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Author and co-author of more than 90 scientific and methodological publications. Courses: " Insurance and insurance business", " Financial markets", " Bank management", "Financial services industry", " Financial risk management", "Theory of international finance".
More about the lecturer on the department's website

General information

Summary

The course "Financial Technologies (FinTech)" develops knowledge about the peculiarities of the application of financial technologies in the context of digital transformation of socio-economic relations and skills in analyzing financial processes and making management decisions, taking into account the use of innovative financial services, financial engineering tools, crowd technologies based on the digitalization of operations and services and the expansion of financial inclusion of subjects of the national economy.

Course objectives and goals

Mastering theoretical knowledge and practical skills in the field of introducing and using innovative technologies in the financial services market.

Format of classes

Lectures, practical work, self-study, consultations. The final control is a differentiated grading.

Competencies

Ability to think abstractly, analyze and synthesize.
Ability to conduct research at the appropriate level.
Ability to identify, formulate and solve problems.
Ability to use the fundamental laws of finance, banking and insurance development in combination with research and management tools to carry out professional and scientific activities.
Ability to use theoretical and methodological tools for diagnosing and modeling the financial activities of business entities.
Ability to apply management skills in the field of finance, banking and insurance.
Ability to evaluate the effectiveness of scientific, analytical and methodological tools to substantiate management decisions in the field of finance, banking and insurance.
Ability to apply interdisciplinary approaches in solving complex tasks and problems in the field of finance, banking and insurance.
Ability to apply innovative approaches in the field of finance, banking and insurance.
Ability to develop technical tasks for the design of information systems in the field of finance, banking and insurance.

Learning outcomes

To know at the level of the latest achievements the main concepts and methodologies of scientific knowledge in the field of finance, banking and insurance.
To adapt and modify existing scientific approaches and methods to specific situations of professional activity.
To be able to apply innovative approaches in the field of finance, banking and insurance and manage them.

Student workload

The total volume of the course is 120 hours (4 ECTS credits): lectures – 32 hours, practical classes – 16 hours, self-study – 72 hours.

Course prerequisites

The course is based on the academic disciplines of the field of knowledge D "Business, Administration and Law".

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

Lectures are conducted remotely using interactive teaching methods using multimedia technologies. Practical classes use a project-based approach to learning, peer-to-peer, and focus on the use of information technologies.

Program of the course

Academic classes

Lectures

Topics of the lectures	Hours
Topic 1. The essence and tools of financial technology (FinTech) The meaning of the concept of "financial technology". Stages of development of financial technology (FinTech). Functions of financial technology (FinTech). Financial technology (FinTech) as an ecosystem.	2
Topic 2. Virtual currency **Topic 2.1 The emergence, nature and schemes of virtual currency** Prerequisites for the emergence of virtual currency. The essence of virtual currency. Virtual currency schemes and their participants. **Topic 2.2 The emergence, nature and schemes of virtual currency**	4

The essence and features of cryptocurrency. Types of cryptocurrencies and their characteristics. Regulation of cryptocurrency transactions. National digital currencies. Signs of digital currency. E-hryvnia.	
Topic 3. Artificial Intelligence in the FinTech Environment The essence and role of artificial intelligence in human life. Stages of development and possibilities of artificial intelligence. Forms of manifestation and ethics of using artificial intelligence.	2
Topic 4. Financial Technology (FinTech) in the Insurance Market The essence of insurance technologies (InsurTech). Application of FinTech tools in insurance. Main directions of development of insurance technologies (InsurTech).	2
Topic 5. Financial Technology (FinTech) in Banking The essence of financial technologies in the banking sector. The role of the National Bank of Ukraine in the process of regulating the FinTech market. Banking products based on digital technologies. Risks for banks under the influence of Fintech.	2
Topic 6. Innovation technologies in public finance and public administration The essence and goals of using FinTech tools in the field of public administration. E-governance. FinTech tools in public finance.	2
Topic 7. Financial technology (FinTech) tools in the investment sector Modernization of the investment sphere in the context of digitalization. Application of FinTech tools in the investment sphere.	2
Topic 8. Financial Technology (FinTech) in the Payment Services Market The essence of payment services. Advantages of cashless payments. Alternative payment services and their types. FinTech tools in the field of payment services.	2
Topic 9. Financial marketplace and alternative FinTech platforms The essence of the marketplace and financial service platforms. Financing investments and business projects through marketplaces. Banking innovations, marketplaces and FinTech startups. Alternative FinTech platforms and online financing.	2
Topic 10. Crowdfunding The essence and types of crowdfunding. Crowdfunding models. Features of crowdfunding platforms in Ukraine and abroad.	2
Topic 11. Crowdlending The essence of crowdlending. Stages of crowdlending development. Types of crowdlending. State regulation of crowdlending in the world.	2
Topic 12. Fundraising The essence, tasks and principles of fundraising. Areas of fundraising activity. Fundraising subjects. Fundraising objects. Fundraising activity and forms of its support.	2
Topic 13. Innovative Surveillance Technologies (SupTech) The emergence and content of supervisory technologies (SupTech). Characteristics and key features of supervisory technologies (SupTech). Advantages of supervisory technologies (SupTech). Main areas of use of supervisory technologies (SupTech).	2
Topic 14. Regulatory technologies (RegTech) in the financial technology system The essence of regulatory technologies (RegTech). The evolution of regulatory technologies (RegTech). The main areas of use of regulatory technologies (RegTech).	2
Topic 15. Cybersecurity and Financial Technology (FinTech) The essence of the concept of "cybersecurity" and its role in the development of financial technologies. Objects of cybersecurity and cyber protection. Subjects of the national cybersecurity system and coordination of their activities. Threats and risks of negative impact on cybersecurity.	2
Total hours	**32**

Workshops

Topics for workshops/seminars	Hours	Weighting coefficients *a*
Topic 1. The essence and tools of financial technology (FinTech) Differences between FinTech companies and traditional financial institutions. Organizational features of FinTech companies.	2	0,1
Topic 2. Virtual currency The difference between electronic and virtual money. Classification of virtual currencies. The main differences between cryptocurrency and electronic money. Advantages of cryptocurrency compared to paper money. The principle of operation and features of the use of cryptocurrencies. Factors forming the value of cryptocurrencies.	2	0,3
Topic 3. Artificial Intelligence in the FinTech Environment Intelligent chatbots as special technological capabilities.	2	0,1
Topic 4. Financial technologies (FinTech) in the insurance market and in the banking sector Introduction of FinTech in insurance. Main types of insurance products, services and processes based on FinTech. Advantages of InsurTech.	2	0,3
Topic 5. Innovation technologies in public finance and public administration Application of FinTech tools in the field of public administration. E-governance. FinTech tools in public finance.	2	0,2
Topic 6. Online financing The impact of FinTech development on personal finance management. The benefits of FinTech-based personal finance management. The nature of crowdfunding, crowdlending and fundraising. Payment models. Benefits for users and owners of financial resources.	2	0,3
Topic 7. Financial Technology (FinTech) Market Regulation Supervisory technologies (SupTech) and regulatory technologies (RegTech).	2	0,1
Topic 8. Cybersecurity and Financial Technology (FinTech) Measures and tools to combat cybercrime. Cybersecurity and securing fintech during war.	2	0,1
Total hours	**16**	$\sum_{i=1}^{n} a_i = 1{,}5$

Control works

Comprehensive test on financial technologies	Weighting coefficients *b*
Topic. Using financial technologies to analyze financial processes and make management decisions The questions cover working with innovative technologies used in the financial services market.	1,0
Total	$\sum_{i=1}^{m} b_i = 1{,}0$

Self-study

Self-study includes independent work on theoretical materials and completion of individual assignments (control work).

Work on theoretical materials

Topics for self-study	Hours
Topic 1. The essence and tools of financial technology (FinTech) Background, importance and role of financial technologies (Fintech). The impact of financial technologies on the development of business entities and households.	4
Topic 2. Virtual currency Prospects for the development of the cryptocurrency market in the world.	2
Topic 3. Artificial Intelligence in the FinTech Environment Prospects and trends in the application of artificial intelligence.	2
Topic 4. Financial Technology (FinTech) in the Insurance Market Promising directions of InsurTech development.	2
Topic 5. Financial Technology (FinTech) in Banking Risks of using the latest financial technologies in the banking sector. Open banking in payment infrastructure.	2
Topic 6. Innovation technologies in public finance and public administration State regulatory bodies of the financial technology market.	2
Topic 8. Financial Technology (FinTech) in the Payment Services Market Implementation of international standards for the provision of payment services. Promising directions for the development of FinTech applications in the field of payment services.	2
Topic 9. Financial marketplace and alternative FinTech platforms Peer-to-peer FinTech P2P platforms. Interaction of banks with P2P platforms and FinTech startups.	2
Topic 10. Crowdfunding Crowdfunding Platform Practices. Crowdfunding to Support Entrepreneurial Initiatives.	2
Topic 12. Fundraising Fundraising planning. Budget and results of fundraising activities.	2
Topic 13. Innovative Surveillance Technologies (SupTech) Features and prospects of using SupTech technologies in regulating the financial technology market.	2
Topic 14. Regulatory technologies (RegTech) in the financial technology system Features and prospects for using RegTech technologies in regulating the financial technology market.	2
Topic 15. Cybersecurity and Financial Technology (FinTech) Financial technologies, cybercrime and combating fraud. Financial technologies and cybersecurity in the defense of Ukraine.	2
Total hours	**28**

Topics for individual assignments

It is planned to perform an individual assignment in the form of a control work. The result is drawn up in a written report in accordance with the requirements given in the literary source [3]. The applicant chooses a specific topic in agreement with the teacher. The volume of the report: 10–15 pages of the main text. The task is completed during the academic weeks and submitted for verification before the beginning of the assessment week.

Topics for individual assignments

1. Differences between FinTech companies and traditional financial institutions.
2. Organizational features of FinTech companies.
3. Early predecessors of FinTech: introduction of high technologies into the financial industry.
4. Early stages of FinTech: features of FinTech development before the spread of the Internet.
5. Internet and transformation of financial services.
6. FinTech revolution.
7. Factors of FinTech evolution.
8. Transformation of customer behavior.
9. Progress in the field of information technology.
10. Main paths of FinTech development.
11. Artificial intelligence in the banking sector.
12. Advantages and disadvantages of Big Data for banks and their scope of application.
13. Areas of application of artificial intelligence in the banking sector.
14. Advantages of Open Banking for banks.
15. Advantages and disadvantages of using cloud technologies in the banking sector.
16. FinTech tools for preventing cybercrime and fraud in the banking sector.
17. Advantages of using blockchain technologies in banking.
18. Application of FinTech tools in the banking sector.
19. Financial inclusion of banking services.
20. Prospects for the development of FinTech in the banking sector.
21. Development of neobanks in the world.
22. Activities of neobanks in the financial services market in Ukraine.
23. Biometrics in banking.
24. Models of interaction between banks and FinTech companies.
25. Open data in the field of public finance.
26. Application of FinTech in public procurement.
27. Blockchain technology in the budget sector.
28. Blockchain technology in the public finance system.
29. Social assistance to the population using blockchain technology.
30. Application of FinTech in the implementation of state policy in the field of social insurance.
31. FinTech in taxation.
32. Application of artificial intelligence in the tax sphere.
33. Introduction of blockchain technology in the domestic tax sphere.
34. Application of FinTech tools in the financial system of Ukraine.
35. Big Data as a tool for increasing the effectiveness of the fight against tax fraud.
36. Innovative blockchain technology in the public finance management system.
37. FinTech in health insurance.

Total hours	**44**

Non-formal education

The applicant has the opportunity to re-enroll individual topics of the discipline by: completing professional courses or trainings, online education, professional internships, in a field that meets the educational goals of the discipline.
For enrollment, it is necessary to provide: a certificate (electronic or printed) of completion of the course/internship, a description of the training program indicating the content of the topics, scope and duration.

Recommended training courses, internships

1. Cryptocurrency and Blockchain Fundamentals. (Possibility of re-enrolling Topic 2. Virtual Currency - 0,3 credits).
https://academy.binance.com/uk-UA/courses
2. FinTech: Funds, Payments, and Regulation. (Possibility of re-enrolling Topic 8. Financial Technology (FinTech) in the Payment Services Market and Topic 14. Regulatory Technology (RegTech) in the Financial Technology System - 0,4 credits).
https://www.coursera.org/learn/wharton-fintech-overview-payments-regulations
3. Fintech Specialization: Fundamentals and Applications of Financial Technology. (Possibility of re-enrolling Topic 1. Essence and Tools of Financial Technology (FinTech) - 0,1 credits).
https://www.coursera.org/specializations/wharton-fintech?action=enroll
4. Cryptocurrency and Blockchain: Introduction to Digital Currencies. (Possibility to transfer Topic 2. Virtual Currency - 0,3 credits).
https://www.coursera.org/learn/wharton-cryptocurrency-blockchain-introduction-digital-currency?specialization=wharton-fintech
5. Lending, Crowdfunding, and Modern Investing. (Possibility to transfer Topic 5. Financial Technology (FinTech) in Banking, Topic 7. Financial Technology (FinTech) in Investment, and Topic 10. Crowdfunding - 0,3 credits).
https://www.coursera.org/learn/wharton-crowdfunding-marketplace-lending-modern-investing?specialization=wharton-fintech
6. Application of AI, InsurTech, and Real Estate Technologies. (Possibility to transfer Topic 3. Artificial Intelligence in FinTech and Topic 4. Financial Technology (FinTech) in Insurance - 0,2 credits).
https://www.coursera.org/learn/wharton-ai-application-insurtech-real-estate-technology?specialization=wharton-fintech

Literature, training materials, and information resources

A list of sources of information and materials formatted in accordance with the standards. It's possible to split the list into sections, e.g. Main literature and Additional materials, etc.

Main literature

1. Kohut Yu. Blockchain technologies and cryptocurrency: risks and cybersecurity. Publishing house : Consulting company "Sidkon", 2022. 316 p.
2. Nasibova O. V. Digital technologies of financial support of the social sphere. Economic Bulletin of the University. 2021. No. 49. P. 200–208. URL: https://ue-bulletin.com.ua/web/uploads/pdf/University%20Economic%20Bulletin,%20Vol%2016,%20No%202-200-208,%202021.pdf
3. System of standards for the organization of the educational process. Text documents in the field of the educational process. General requirements for implementation : STZVO-KhPI-3.01-2025. Kharkiv, 2025. URL: https://blogs.kpi.kharkov.ua/v2/metodotdel/wp-content/uploads/sites/28/2025/06/STZVO-HPI-3.01-2025-2.pdf
4. Teslyuk S. A. Digital Finance : Lecture Notes. Lutsk : Volyn National University named after Lesya Ukrainka, 2022. 98 p. URL: https://evnuir.vnu.edu.ua/bitstream/123456789/20878/3/cyfrov_tesliuk.pdf
5. Financial Technologies : Teaching Manual / V. V. Korneev, O. I. Bereslavska, A. I. Guley et al.; General Editor: Dr. of Economics, Prof. V. V. Korneev. Irpin : State Tax University, 2024. 244 p.

Additional materials

1. Analytical materials of the Ukrainian Association of Fintech and Innovative Companies. Ukrainian fintech catalog. URL: https://fintechua.org/
2. On approval of the Concept of Development of Digital Competencies and approval of the Action Plan for its Implementation : Resolution of the Cabinet of Ministers of Ukraine dated 03.03.2021 No. 167-p. URL: https://zakon.rada.gov.ua/laws/show/167-2021-%D1%80#Text
3. Concept of Development of Innovative Supervisory and Regulatory Technologies. URL: https://bank.gov.ua/admin_uploads/article/%D0%A1oncept_development_Suptech_Regtech.pdf?v=9

4. 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. 2023. 29/2. P. 77-91. URL: https://doi.org/10.19195/2658-1310.29.2.5
5. Strategy for the Development of the Financial Sector of Ukraine. Kyiv : Official Internet Representation of the National Bank of Ukraine. URL: https://bank.gov.ua/admin_uploads/article/Strategy_finsector_NBU.pdf?v=7
6. Strategy for the Development of Fintech in Ukraine until 2025. Kyiv : Official Internet Representation of the National Bank of Ukraine. URL: https://bank.gov.ua/ua/files/DDWIAwXTdqjdClp

Information resources

1. Digital finance. European Commission survey. URL: https://finance.ec.europa.eu/digital-finance_en

Grading system

Academic success of a higher education applicant is determined using the criteria and system for assessing the knowledge and skills of applicants, which is used at NTU “KhPI” (https://blogs.kpi.kharkov.ua/v2/nv/wp-content/uploads/sites/43/2024/01/Polozhennya-pro-kryteriyi-otsinyuvannya-znan-ta-vmin-i-pro-rejtyng-zdobuvachiv.pdf)

Current control is carried out during practical classes, as well as tests. Final control is carried out based on the results of differentiated assessment or as a result of accumulating grades on individual topics if the applicant completes all types of current control measures. Under the conditions of the applicant completing the test work on the academic discipline at the control measure, but in the absence of the results of current control (practical classes), the applicant cannot be certified in the academic discipline until he liquidates his current debt. The estimated value in quantitative form of the final assessment is determined by the formula:

$$O = \Sigma(Ki \times Oi) / \Sigma Ki$$

where Ki – the number of credits of the i-th type of classes; Oi – the assessment in quantitative form (points) from the i-th type of classes.
Distribution of credits by types of classes in the discipline

Types of classes	Number of credits (Ki)
Practical work control work individual assignment	1,5 1,0 1,5

Each type of activity (Oi) is evaluated on a 100-point scale.

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

Students 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	30.08.2025	**Head of the department** Oleksandr MANOYLENKO