







DEFEP Project Results

ERASMUS-EDU-2022-CBHE-STRAND-2

101083143 — DEFEP

DISTANCE EDUCATION FOR FUTURE:
BEST EU PRACTICES IN RESPONSE TO
THE REQUESTS OF MODERN HIGHER EDUCATION SEEKERS AND LABOR MARKET



PROJECT CONCORCIUM

PETRO MOHYLA BLACK SEA NATIONAL UNIVERSITY COORDINATOR

UNIVERSITAT DES SAARLANDES UNIVERSIDAD REY JUAN CARLOS UNIVERSITA DEGLI STUDI DI PALERMO UNIVERSITATEA DE STAT DIN MOLDOVA UNIVERSITATEA TEHNICA A MOLDOVEI V. N. KARAZIN KHARKIV NATIONAL UNIVERSITY **CHERNIHIV POLYTECHNIC NATIONAL UNIVERSITY UMAN NATIONAL UNIVERSITY OF HORTICULTURE** LVIV NATIONAL ENVIRONMENTAL UNIVERSITY **VADYM HETMAN KYIV NATIONAL ECONOMIC UNIVERSITY**

Sociological survey

https://defep.chmnu.edu.ua/results-reports/sociological-survey/









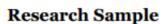


Report on the results of sociological survey Ukraine





Report on the results of sociological survey Moldova



Subsample (stakeholder groups)	nolder Sampling Sample size		Sample size (weighted)	Sample accuracy
Students	Spontaneous, quota (based on the HEI)	4877 resp.	2604 resp.	at a confidence interval 2% confidence probability is ~ 97%
Scientific and and pedagogical staff	Spontaneous, quota (based on the HEI)	1412 resp.	894 resp.	at a confidence interval 3% confidence probability is ~ 97%
Heads of HEIs	eads of HEIs Solid		107 resp.	at a confidence interval 2% confidence probability is ~99%
Employers	Spontaneous	242 resp.	242 resp.	not subject to assessment











Sociological survey

https://defep.chmnu.edu.ua/results-reports/sociological-survey/

Table 1.4.5. Characteristics of the asynchronous learning (students)

How can we describe the asynchronous form of educational interaction?	%	
positive characteristics		
Allows to save a lot of time for other things	60,4	
This form is more convenient than the others because there is no schedule	56,3	
Asynchronous form reduces fatigue from working with computers and gadgets	43,7	
This form allows you to maintain psychological comfort	42,2	
This form ontributes to more meaningful consultations with teachers	14,6	
<u>negative characteristics</u>		
This form does not provide a sense of real learning	31,2	

 $\textbf{Table 1.6.2.} \ Social \ and \ psychological \ comparison \ of \ learning \ formats \ (students, \%)$

Which learning format is better suited to this statement?	in a full-time format	roughly the same	in a remote format	Total
Psychologically more comfortable	17,3	22,2	60,5	100
Causes more fatigue	59,4	26,8	13,7	100
It is more convenient to combine study and work	4,5	12,8	82,7	100
It's easier to establish friendships and work relationships	57,7	30,5	11,8	100

Table 1.7.1. Comparison of the quality of education in different learning formats (students, %)

Which learning format is better suited to this statement?	in a full-time format	roughly the same	in a remote format	Total
Students are more likely to miss classes	43	36,2	20,9	100
Students are more actively participating in classes	42,6	39,4	17,9	100
Teachers are better at lecturing	32,8	44,1	23,1	100
Teachers are better at conducting seminars (practical) and laboratory classes	39,9	42	18,2	100
It is possible to get a better education	49,9	40,4	9,6	100

 $\textbf{Table 1.7.3.} \ \ \text{Readiness to enroll in a master's program in distance learning (students)}$

If your university offered distance learning as a separate form of master's program, would you choose it?	%
Definitely yes	30,2
More likely, yes	41,6
Rather, no	19,9
Definitely not	8,3
Total	100









Sociological survey

https://defep.chmnu.edu.ua/results-reports/sociological-survey/

Table 2.7.2. Interest in areas of professional development (lecturers, %)

Please assess which areas of professional development would be interesting and useful for you	Not interesting at all	Interesting, but not too much	Very interest ing	Total
New methods and approaches to teaching in an online format	9,3	39,8	50,9	100
Video production and recording skills	12,7	38,3	49	100
Skills in working with video editors, editing	17	33,1	49,9	100
Acting, performing in front of the camera	34,4	40,6	25	100
Skills in developing diction and working with a microphone	35,9	38,3	25,8	100

Table 2.8.6. Overall assessment of an distance education format (lecturers)

Which of the following statements correspond to your experience of teaching in online learning?	%
Online learning requires a large amount of additional time, as it requires in-depth adaptation of practical and laboratory work	57,3
Online learning increases efficiency by enabling the use of many technical innovations in teaching	44,1
Online learning requires a large amount of additional work to prepare methodological support of a purely formal nature	36,9
Online learning limits and over-formalises communication between students and lecturers and between lecturers and HEI heads	29,4
Online learning reduces the quality of education due to the impossibility or inappropriateness of using many proven forms of teaching	28,8
Online learning without classroom contact with students and colleagues makes me feel psychologically uncomfortable	27,4
For online learning, there is a severe lack of quality teaching and learning materials, so you have to develop them yourself	26,5
Online learning facilitates the technical and procedural aspects of quality control of knowledge acquisition and increases its reliability	25,4

Table 4.3.4. Disadvantages of distance education (employers)

What are the difficulties and challenges that a massive transition to an online learning format can bring for employers?		
Lack of communication skills, "live" interaction skills	50,4	
Decrease in the level of organisational skills, teamwork and co-working skills	40,3	
Decrease in the level of professional knowledge, skills and abilities of graduates	26,1	
This makes it difficult to adequately combine work and study	18,5	
Lack of self-organisation and self-discipline	12,6	
This makes it difficult to attract young professionals to full-time work	10,9	
Decreased motivation to work	1,7	
Distance education does not cause any specific problems	57,1	

^{*}respondents could choose several options, so total is >100%

Table 4.3.5. Advantages of distance education (employers)

What are the real benefits of a massive transition to online learning for employers?	%
Promotes the development of digital and technology skills	39,7
Provides an adequate balance between work and study	38,8
Provides skills in mobility, adaptation and flexible working	34,3
Stimulates self-organisation and self-discipline	28,9
Promotes the development of skills for quick information retrieval	28,1
Allows young professionals to be involved in full-time work faster	12,8
Improves the speed of response and completion of work tasks	9,1
Distance education does not provide any specific advantages	23,6
* 1 , 111 1 1 ,	

^{*}respondents could choose several options, so total is >100%









Study visits: https://defep.chmnu.edu.ua/events/







STUDY VISIT TO SAARLAND UNIVERSITY



















Корпоративна

кращі практики

бізнесу

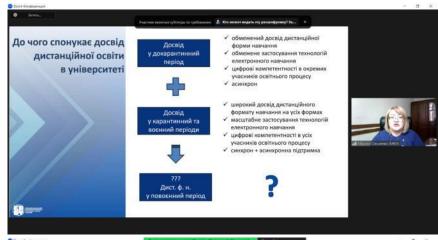
9 6 6 6

дистанційна освіта:

International Forum of Educators and Employers: Petro Mohyla Black Sea National University

https://defep.chmnu.edu.ua/activities-events/distance-education-of-the-future-challenges-and-perspectives/













International scientific and practical conference V.N. Karazin Kharkiv National University

https://defep.chmnu.edu.ua/activities-events/transformations-of-personality-en/

"TRANSFORMATIONS OF PERSONALITY,
SOCIETY AND THE LABOR MARKET: FUTURE
CHALLENGES AND IMPACT ON EDUCATION"
20-22 September 2023





трансформації особистості, суспільства та ринку праці: виклики майбутнього та вплив на освіту Collection of abstracts







ХІ МІЖНАРОДНИЙ БІЗНЕС-ФОРУМ НАУКА БІЗНЕС ОСВІТА

2023

Антоніна КУТОВА

Юрій РЕШЕТНИК

розробки IT продуктів

НЕВМЕРЖИЦЬКИЙ CFA. FRM. ERP керівник

Ярослав

Co-Founder, CEO Pro Capital

Investment, бізнес-консультантка проєктів USAID, директорка

головний аналітик Департаменту



ПАНЕЛЬНА ДИСКУСІЯ: ІННОВАЦІЙНІ ІНСТРУМЕНТИ ДІДЖИТАЛІЗАЦІЇ ОСВІТНЬОГО ПРОЦЕСУ ПИТАННЯ ДЛЯ ОБГОВОРЕННЯ:

- Якою має бути вища освіта в умовах цифрової економіки
- Вимоги ринку праці та роботодавців до дистанційної форми навчання
- Нові форми дистанційної освіти міждисциплінарні освітні програми
- Цифрові освітні платформи в екосистемі дистанційної освіти



Марина СІЛЬЧЕНКО



Тетяна ДАЛЄВСЬКА

державна експертка Директорату стерства освіти ї науки України



Іихайло МАЛЬОВАНИЙ

проректор з науково-педагогічної роботи Уманського національного ніверситету садівництва



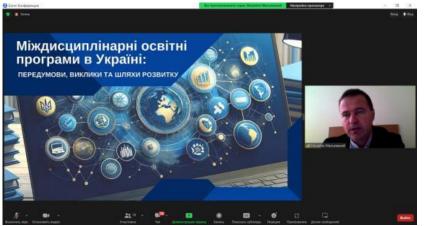
адим БЕРЕЗОВИК



рдинаторка проекту СС Еразмус+ 101083143 - DEFEP.

International Business Forum "Science - Business

- Education: strategic partnership "Kyiv National Economic University named after V. Hetman







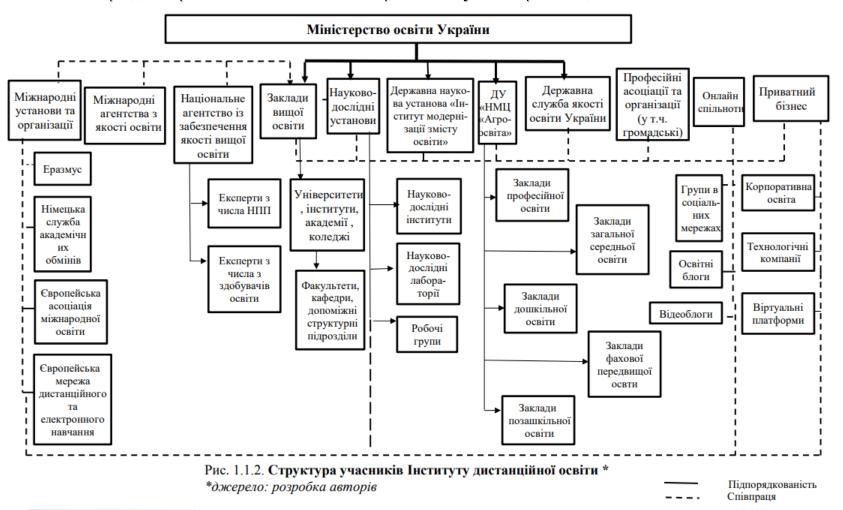






Analytical Report

https://defep.chmnu.edu.ua/results-reports/analytical-report-en/



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.









The Erasmus+K2 project DEFEP
Дистанційна освіта майбутнього: кращі практики
ЄС у відповідь на запити
сучасних здобувачів вищої освіти та ринку праці

АНАЛІТИЧНИЙ ЗВІТ: КЛЮЧОВІ ТЕНДЕНЦІЇ У РЕФОРМУВАННІ ДИСТАНЦІЙНОЇ ОСВІТИ

ANALYTICAL REPORT: KEY TRENDS IN REFORMATION OF DISTANCE EDUCATION





Monograph on Methodology of Distance Education



























The Erasmus+K2 project DEFEP
Distance Education for Future:
best EU practices in response to the requests of
modern highereducation seekers and labor market

EDUCATION INNOVATIONS

AS A RESPONSE TO MODERN CHALLENGES:

MODEL OF DISTANCE EDUCATION

Monograph

2024



Part 1 DISTANCE EDUCATION IN THE PARADIGM OF MODERN EUROPEAN UNIVERSITY EDUCATIONAL PRACTICES

- 1.1 The Role of Distance Education in the Context of Global Educational Environment
- 1.2 Terminology Analysis and Research Context of Distance Higher Education
- 1.3 Distance Education: Dimensions, Forms and Models

Part 2. INNOVATIONS IN THE DISTANCE EDUCATION ECOSYSTEM IN UKRAINE AND MOLDOVA

- 2.1 Fundamental Concepts for the Ecosystem of Distance Higher Education
- 2.2 EU Ecosystem of Distance Education
- 2.3 Institutional Strategies of the Distance Education Ecosystem Implementation in Ukraine and Moldova?
- 2.4 Modernization of Organization Model of Distance Higher Education Ecosystem

Part 3. PEDAGOGICAL AND PSYCHOLOGICAL ASPECTS OF PROVIDING DISTANCE EDUCATION

- 3.1. Learning Context in Distance Education
- 3.2. Educational Strategies Used in Distance Education
- 3.3. Communication and Networking in Distance Education
- 3.4. Psychological Dimensions of Distance Education

Part 4. TECHNOLOGICAL TOOLKIT OF DISTANCE EDUCATION MODEL

- 4.1 Software Solutions for Structuring the Educational Process in Distance Education
- 4.2 Assessment of Distance Learning Systems Used in Higher Education
- 4.3 How to Choose the Optimal Distance Learning System
- 4.4 Digital Tools in Distance Education
- 4.5 Exploring Innovative Technologies in Distance Education

Part 5. TRENDS FOR DISTANCE EDUCATION DEVELOPMENT

- 5.1. Prospects and Challenges for the Development of Distance Education in Ukraine
- 5.2. Perspectives for the Distance Education Modernization in Moldova

Part 6. GLOSSARY OF DISTANCE EDUCATION









Sample regulations package: provisions, standards, instructions, methodological recommendations for distance education





Чорноморський національний університет імені Петра Могили



Про університет Факультети Вступнику Студенту Наука Міжнародні зв'язки Intern

ERASMUS+KA2 101083143 - DEFEP - ERASMUS-EDU-2022-CBHE



Co-funded by the European Union

STRUCTURE V

CONSORTIUM NEWS ACTIVITIES >

RESULTS V CONTACTS

ДИСТАНЦІЙНА ОСВІТА МАЙБУТНЬОГО: КРАЩІ ПРАКТИКИ ЄС У ВІДПОВІДЬ НА ЗАПИТИ СУЧАСНИХ ЗДОБУВАЧІВ ВИЩОЇ ОСВІТИ ТА РИНКУ ПРАЦІ

- 🖺 Типове положення про академічну доброчесність (за дистанційної форми здобуття вищої
- 🖺 Типове положення про атестацію здобувачів вищої освіти (за дистанційної форми здобуття вишої освіти)
- Типове положення про дистанційні курси та їх сертифікацію в закладі вищої освіти
- Типове положення про дистанційну форму здобуття вищої освіти.
- Типове положення про кваліфікаційну роботу (за дистанційної форми здобуття вищої
- Типове положення про підрозділ дистанційної освіти
- 🖺 Типове положення про проведення екзаменів і заліків (за дистанційної форми здобуття вищої освіти)
- 🖺 Типове положення про рейтингову систему оцінювання результатів навчання здобувачів (за дистанційної форми здобуття вищої освіти)
- Типове положення про студентське самоврядування (за дистанційної форми здобуття вищої освіти)
- Типовий етичний кодекс (за дистанційної форми здобуття вищої освіти)
- Типовий стандарт дорадництва та коучингу (за дистанційної форми здобуття вищої освіти)
- Типовий стандарт етики спілкування (за дистанційної форми здобуття вищої освіти) Типовий стандарт запобігання і врегулювання потенційного та реального конфлікту.
- інтересів (за дистанційної форми здобуття вищої освіти)
- Типовий стандарт комунікації та супроводу осіб з інвалідністю (за дистанційної форми здобуття вишої освіти)
- Типовий стандарт реагування на випадки булінгу (цькування), сексуальних домагань та дискримінації (за дистанційної форми здобуття вищої освіти)
- Типові інструкції та методичні рекомендації щодо розробки освітніх програм і навчальних планів (за дистанційної форми здобуття вищої освіти)
- 🖺 Типові інструкції та методичні рекомендації щодо розробки силабусів робочих програм навчальних дисциплін (з урахуванням дистанційної форми здобуття вищої освіти)

SAMPLE REGULATIONS PACKAGE

- 1. STANDARD REGULATION ON THE DEPARTMENT OF DISTANCE EDUCATION
- 2. STANDARD REGULATION ON DISTANCE HIGHER EDUCATION
- 3. STANDARD REGULATION ON DISTANCE COURSES AND THEIR CERTIFICATION IN AN INSTITUTION OF HIGHER EDUCATION
- 4. STANDARD REGULATION ON THE RATING SYSTEM FOR ASSESSING THE LEARNING RESULTS OF SEEKERS (for distance higher education)
- 5. STANDARD REGULATION ON CARRYING OUT EXAMINATIONS AND CREDITS (in the distance form of higher education)
- 6. STANDARD REGULATION ON THE HIGHER EDUCATION STUDENTS CERTIFICATION (in the distance form of higher education)
- 7. STANDARD REGULATION ON QUALIFICATION WORK (in the distance form of higher education)
- 8. STANDARD REGULATION ON STUDENTS' SELF-GOVERNANCE (in the distance form of higher education)
- 9. STANDARD REGULATION ON ACADEMIC INTEGRITY (in the distance form of higher education)
- 10. TYPICAL STANDARD OF COUNSELING AND COACHING (in the distance form of higher education)
- 11. STANDARD INSTRUCTIONS AND METHODICAL RECOMMENDATIONS ON THE DEVELOPMENT OF EDUCATIONAL PROGRAMS AND CURRICULA (for distance higher education)
- 12. STANDARD INSTRUCTIONS AND METHODICAL RECOMMENDATIONS FOR THE DEVELOPMENT OF SYLLABI / WORK PROGRAMS OF ACADEMIC DISCIPLINES (in the distance form of higher education)
- 13. TYPICAL INSTRUCTIONS AND RECOMMENDATIONS FOR TEACHING METHODOLOGY IN DISTANCE EDUCATION
- 14. TYPICAL CODE OF ETHICS (in the distance form of higher education)
- 15. MODEL STANDARD OF COMMUNICATION ETHICS (in the distance form of higher education)
- 16. MODEL STANDARD FOR COMMUNICATION AND SUPPORT OF PERSONS WITH DISABILITIES (in the distance form of higher education)
- 17. A MODEL STANDARD ON RESPONDING TO CASES OF BULLYING (HARASSMENT), SEXUAL HARASSMENT AND DISCRIMINATION (in the distance form of higher education)
- 18. MODEL STANDARD ON THE PREVENTION AND RESOLVING POTENTIAL AND REAL INTEREST CONFLICT (in the distance form of higher education)









Guide package for teachers, advisors and tutors







METHODICAL RECOMMENDATIONS AND INSTRUCTIONS ON THE DEVELOPMENT OF EDUCATIONAL PROGRAMS AND EDUCATION PLANS IN THE DISTANCE HIGHER EDUCATION























ERASMUS+KA2 project DEFEP Distance education of the future: EU best practices in response to the requests of modern higher education seekers and labor market





ERASMUS+KA2 project DEFEP Distance education of the future: EU best practices in response to the requests of modern higher education seekers and labor market

GUIDE (INSTRUCTIONS) FOR ADVISORS AND TUTORS

METHODOLOGICAL GUIDE FOR TEACHER FOR DISTANCE EDUCATION





















































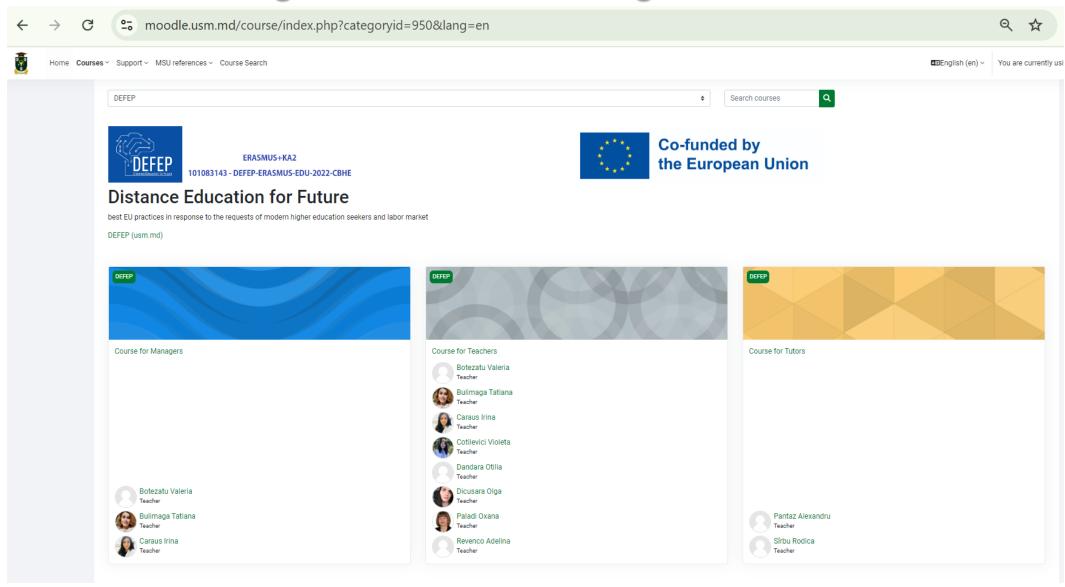








Trainings for teachers, managers and tutors











Experimental training laboratory

of distance education





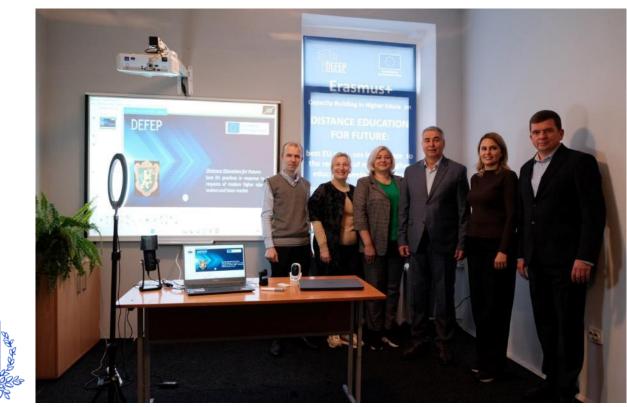


Distance Learning Laboratory

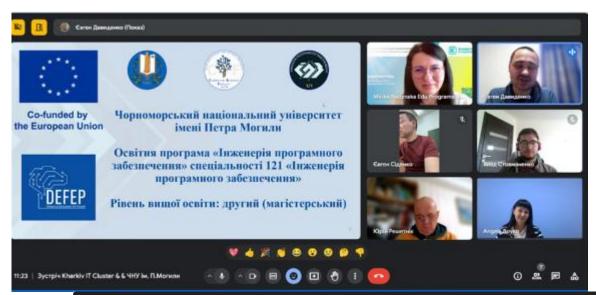




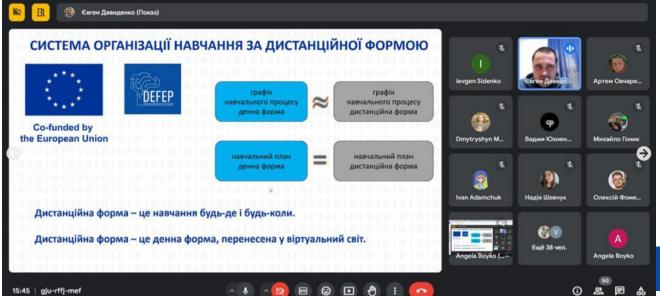




Preparation for the piloting of master's programs in the distance form of higher education







ПРЕЗЕНТАЦІЯ ОСВІТНЬОЇ ПРОГРАМИ «ІНЖЕНЕРІЯ ПРОГРАМНОГО ЗАБЕЗПЕЧЕННЯ» ДИСТАНЦІЙНОЇ ФОРМИ НАВЧАННЯ









Quality of education and academic integrity assurance methodic

















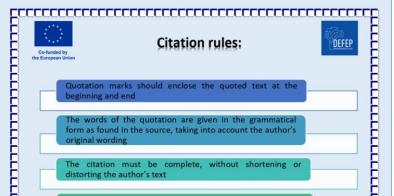


Roadmap for Ensuring Quality and Maintaining Academic Integrity in Distance Education

To ensure *the quality of distance education* and maintain academic integrity among students and teachers, a comprehensive approach should be realized, involving a series of measures and techniques.

The first stage includes preparation and planning, where the structure of the quality assurance system for distance education is created, and the regulatory framework is developed, which meets the formal requirements of the higher education standard. At this stage, quality assurance policies and procedures for distance education





SYLLABUS Academic Integrity and Fundamentals of Information Literacy

Course summary. One of the priority areas of preparing higher education seekers at the university is ensuring adherence to academic integrity principles in the educational environment. Academic integrity is the fundamental basis of modern education and scientific activity. It maintains the support of high standards of learning and research, ensures honesty and fairness within scientific community, and strengthens trust in the results of scientific research and the educational process. In today's world, where information is becoming more and more accessible, and as the demands for scientific achievements are steadily rising, adherence to academic integrity principles gains particular importance. Plagiarism, data falsification, unlawful use of other people's ideas, and other forms of academic dishonesty do not only undermine trust in scientific results, but also damage the reputation of both individual scientists and entire institutions.

The course "Academic Integrity and Fundamentals of Information Literacy" is designed to familiarize higher education seekers with core principles and ethical norms of academic activity, teach them to avoid unfair practices. and adhere to high standards in their work.







STRATEGY FOR MANAGING DISTANCE EDUCATION AS A SEPARATE AND INDEPENDENT FORM OF EDUCATION IN HIGHER EDUCATION INSTITUTIONS





Monitoring and Learning Outcomes Evaluation System in Distance Education









«Distance Education for Future: best EU practices in response to the requests of modern higher education seekers and labor market» 101083143 — DEFEP — ERASMUS-EDU-2022-CBHE



Deliverable 7.2. Monitoring and Learning Outcomes Evaluation System

Monitoring and Learning Outcomes Evaluation System is the methodical approach, developed and formed as a document regulating the criterion, tools for diagnosis and evaluation of learning outcomes and educational institutions (about 70 pages).

The methodical approach includes evaluation criteria, means of diagnosis and measurement of the results of the acquisition of professional competencies by distance education seekers from the position of higher education seekers, employers and business representatives, academic staff and management of HEIs, as well as the criteria set by the institutions of national systems of regulation in the field of higher education and quality assessment (it means, for example, criteria of the Ministries of Education and Agencies for Quality Assurance of Education of Ukraine and Moldova).

Evaluation criteria and diagnostic tools for learning outcomes will be used to ensure the objectivity of measuring and evaluating student achievement. Properly chosen tools for diagnosis and measurement of results will allow us to accurately assess the quality of distance education at this stage and, if necessary, quickly eliminate shortcomings.

The methodical approach for Monitoring and Learning Outcomes Evaluation System are available at the link:

https://drive.google.com/drive/folders/1Q1aabcDxU92I4hdu5ntWSTH ZPi6GG2D?usp=drive link





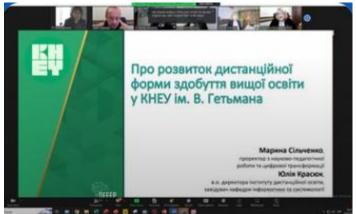


МЕТОДИКА

Система моніторингу та оцінки результатів навчання



Piloting of master's programs in the distance form of higher education



РОЗВИТОК ДИСТАНЦІЙНОГО НАВЧАННЯ В КНУ ІМЕНІ ВАДИМА ГЕТЬМАНА

29 лютого 2024 року на засіданні Вченої ради Київський національний економічний університет імені Вадима Гетьмана було розглянуто питання розвитку в університеті дистанційної форми здобуття вищої освіти. Члени



ЗУСТРІЧ ГАРАНТІВ ОСВІТНІХ ПРОГРАМ КИЇВСЬКОГО НАЦІОНАЛЬНОГО ЕКОНОМІЧНОГО УНІВЕРСИТЕТУ ІМЕНІ ВАДИМА ГЕТЬМАНА

27 травня 2024 р. на кафедрі корпоративних фінансів і контролінгу Київського національного економічного університету імені Вадима Гетьмана відбулася зустріч гарантів освітніх програм другого (магістерського) рівня









ОСВІТНЯ ПРОГРАМА: "ЕКОНОМІКА СОЦІАЛЬНОГО ЗАБЕЗПЕЧЕННЯ"

Рівень вищої освіти: другий (магістерський)

ЗАТВЕРДЖЕННЯ
ПОЛОЖЕННЯ ПРО
ДИСТАНЦІЙНУ ФОРМУ
ЗДОБУТТЯ ВИЩОЇ ОСВІТИ В
УМАНСЬКОМУ
НАЦІОНАЛЬНОМУ
УНІВЕРСИТЕТІ САДІВНИЦТВА

На засіданні Вченої ради Уманського національного університету садівництва було розглянуто, обговорено та затверджено Положення про дистанційну форму здобуття вищої освіти в Уманському національному університеті садівництва,



Piloting of master's programs in the distance form of higher education

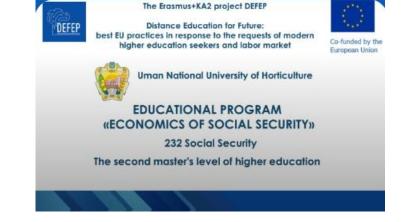
https://defep.chmnu.edu.ua/?page_id=1251&lang=uk

2024 University Admissions Campaign and Results

















Piloting of master's programs in the distance form of higher education

https://defep.chmnu.edu.ua/?page_id=1251&lang=uk

2025 University Admissions Campaign and Results

PETRO MOHYLA BLACK SEA NATIONAL UNIVERSITY

Master's degree programs in distance learning:

- 1. Software engineering
- Germanic Languages and Literatures (including translation), first language -English
- 3. Philology. Germanic
 Languages and Literatures
 (including translation), first
 language German
- 4. Journalism
- Politology

UMAN NATIONAL UNIVERSITY

Master's degree programs in distance learning:

- Investment Business
- Corporate Finance and Controlling
- 3. Economic Cybernetics and Data Science
- 4. International Economics
- Accounting and Auditing
- Innovative Entrepreneurship and Digital Leadership
- 7. International Management
- 8. International Trade and Marketing
- 9. Social Management

KYIV NATIONAL ECONOMIC UNIVERSITY NAMED AFTER VADYM HETMAN

Master's degree programs in distance learning:

- 1. Investment Business
- 2. Corporate Finance and Controlling
- Economic Cybernetics and Data Science
- 4. International Economics
- 5. Accounting and Auditing
- 6. Innovative Entrepreneurship and Digital Leadership
- 7. International Management
- 8. International Trade and Marketing
- 9. Social Management









Project contacts

HTTPS://DEFEP.CHMNU.EDU.UA/

DEFEP.CBHE@GMAIL.COM

Project Coordinator OLENA FILIMONOVA

filimonova.ob19@gmail.com

Project Manager Anzhela BOIKO

anzhela.boiko@chmnu.edu.ua

Project Manager Natalya ISHCHENKO

nataly.ishchenko@chmnu.edu.ua







