ANALYSIS OF THE QUALITY OF SYNCHRONOUS AND ASYNCHRONOUS DISTANCE LEARNING IN UIPA AND DETERMINATION OF PROSPECTS FOR ITS OPTIMIZATION
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The relevance of the article is to reveal the technology of ensuring the quality of distance education based on a step-by-step evaluation of the developed materials, to identify the criteria for the completeness of the mandatory and additional components of the course studied remotely on the website of the HEI. Such an examination is called structural and functional and consists of three parts: mandatory group 1; mandatory group 2; additional group 3. Mandatory groups include general information; course annotations, work program, information about the teacher, scores for assignments, tasks for practical and independent work of students, module control issues, methodological instructions for practical and independent tasks. An additional group includes lecture texts, presentations, glossary, etc. Completeness criteria are developed for each department, as each department has its own characteristics and specifics of educational disciplines. The article provides tables of completeness criteria for the Department of Foreign Languages and for all other departments.

The second type of expertise that is proposed is the support expertise. For the Department of Foreign Languages, it consists of two mandatory groups. The first group includes: enrollment of students, timely checking of assignments, correctness of hyperlinks, student activity, etc. The second group includes the availability of comments in case of not using the maximum score for an assignment, feedback through surveys, etc. For other departments, the content of peer review is slightly different, namely: two main groups covering the correctness of the date of assignments, the availability of a list of groups with student option numbers, timeliness of assignment checking, and the activity of the teacher and students; the third additional group takes into account the activity of the teacher's pedagogical activity and the activity of teamwork in the DL. The constant use of peer review during the semester and periodic assessment of the completeness of the course content studied by students allows for ongoing adjustment of the content and methods of mastering the disciplines, which improves the quality of distance learning.

The article discusses the procedure for certification of an e-learning course and the procedure for establishing and operating a certification commission.

The analysis of distance learning at UIPA allowed the author to identify the main reserves that can be used to improve the quality of online learning.

The conclusions highlight some problematic issues that should be addressed by teachers, students and the administration of the higher education institution. The conclusion is made that it is necessary to carry out a number of organizational, control, motivational measures within the HEI to optimize the content and control in the process of using distance education. For the prospect of further research, further development of the content of distance courses, the mechanism of their use and control to improve the quality of distance learning is determined.

Keywords: distance learning, quality of distance learning, e-learning course, examination of the completeness of the course download, examination of support during the semester.

Рябов О. «Аналіз якості синхронного та асинхронного дистанційного навчання в УІПА та визначення перспектив його оптимізації»

Актуальність статті полягає в розкритті технології забезпечення якості дистанційної освіти на основі покрокового оцінювання розроблених матеріалів, виокремлення критеріїв повноти розташування на сайті ДО обов'язкових і додаткових складових курсу, що вивчається дистанційно. Така експертиза має назву структурно-функціональної і складається з трьох частин: обов'язкової групи 1; обов'язкової групи 2; додаткової групи 3. Обов'язкові групи охоплюють загальні відомості; анотацію курсів, робочу програму, відомості про викладача, бали за виконання завдань, завдання для практичної і самостійної роботи студентів, питання модульного контролю, методичні вказівки для виконання практичних і самостійних завдань. Додаткова група включає тексти лекцій, презентації, глосарій тощо.

Критерії повноти розробляються для кожної кафедри, оскільки кожна кафедра має свої особливості та специфіку освітніх дисциплін. У статті наведені таблиці критеріїв повноти для кафедри іноземних мов та для всіх інших кафедр.

Другий вид експертизи, який пропонується, це експертиза супроводу. Для кафедри іноземних мов вона складається з двох обов'язкових груп. Перша група включає: зарахування студентів, своєчасну перевірку завдань, коректність праці гіперпосилань, активність студентів, ін. До другої групи входять питання наявності коментарю у разі застосування не максимального балу за завдання, зворотний зв'язок за допомогою опитувань тощо. Для інших кафедр зміст експертного оцінювання трохи інший, а саме: дві основних групи, що охоплюють питання коректності дати завдань, наявності списку груп з номерами варіантів студентів, своєчасності перевірки завдань, активності роботи викладача і студентів; третя додаткова група враховує активність педагогічної діяльності викладача та активність колективної роботи в ДО. Постійне використання експертного оцінювання протягом семестру та періодичне оцінювання повноти завантаження змісту курсу, що вивчають студенти, дає змогу здійснювати поточне коригування змісту та способів опанування дисциплінами, що підвищує якість дистанційного навчання.

У статті розглядається порядок проведення атестації електронного навчального курсу – ЕНК та порядок створення і роботи атестаційної комісії.

Аналіз дистанційного навчання в УІПА дав змогу автору виокремити основні резерви, які можна використати для підвищення якості навчання в онлайн режимі.

У висновках йдеться про деякі проблемні питання, які бажано вирішити з боку викладачів, з боку студентів та з боку адміністрації закладу вищої освіти. Робиться висновок про необхідність в межах ЗВО провести низку заходів організаційного, контрольного, мотиваційного характеру для оптимізації змісту та контролю в процесі застосування дистанційної освіти. Для перспективи подальших досліджень визначається подальше розроблення змісту дистанційних курсів, механізму їх використання та контролю для підвищення якості дистанційного навчання.

Ключові слова: дистанційне навчання, якість дистанційного навчання, електронний навчальний курс, експертиза повноти завантаження курсу, експертиза супроводу протягом семестру.

Introduction. Ensuring the quality of distance learning is a challenge of our time. The COVID-19 pandemic, followed by the full-scale invasion of Ukraine by the Russian Federation, has led to the introduction of distance learning in almost all educational institutions of various levels of organization.

At the same time, work has intensified on computerization of educational institutions, provision of gadgets to students at family expense, and the need to improve the skills of teachers in the use of Internet resources in the educational process. All of the above has led to the transformation of interaction in the system of "parents - students - teachers - administration of the institution". Face-to-face communication has disappeared, and all communications have become online. New learning conditions and increased environmental variability have led to the development and application of innovative technologies in distance education, adaptation of existing foreign online methods and positive experience of online learning to the updated educational system of Ukraine, which has just begun its development.

That is why ensuring the quality of modern distance education in Ukraine is a priority for teachers, students and researchers.

Analysis of recent research and publications. Numerous studies have been devoted to the problems of informatization of education (A. I. Bashmakov, R. S. Gurevich, M. M. Koziar, P. I. Obraztsov, A. I. Uman, L. Shevchenko and others). The problems of formation and application of information and educational environments in the professional training of specialists were studied by A. A. Andreev, Y. O. Zhuk, E. S. Polat, N. G. Syrotenko and others. Many foreign and domestic scholars, such as: R. Delling, G. Ramblay, D. Keegan, M. Simonson, M. Moore, A. Clark, M. Thompson, O. Andreev, G. Kozlakova, I. Kozubovska.

The issues of organization of distance learning are devoted to the works of V. V. Vyshnivskyi, M. P. Hnidenko, G. I. Gaidur. MULINA N. I. [9].

Mulina N. I. revealed the management of distance education [8]. N. V. Morze and O. G. Glazunova described models of effective use of information and communication and distance learning technologies in higher education [7]. V. Bykov studied models of organizational systems of open education [1]. L.B. Lishchynska considered distance learning as a modern educational technology [5].

However, a significant number of scientific studies do not ensure the quality of modern distance education in Ukraine, because most users - authors of distance courses at the lower levels of direct

implementation still perceive it somewhat specifically, either as one of the more or less convenient forms of distance learning, or as a component of independent tasks of full-time education, without using all the possibilities of fundamentally new forms and methods of education. Therefore, despite a large number of diverse and large-scale studies on the informatization of education and the use of information and communication technologies in education, including information learning environments, they have not thoroughly studied the development and application of innovative technologies that would ensure the quality of online education.

Therefore, research on the state and features of distance education in professional training institutions is a relevant and significant process for ensuring the growth of the quality of education.

The purpose of the article is to disclose the content and technology for assessing the quality of synchronous and asynchronous online classes at the higher education institution "Ukrainian Engineering and Pedagogical Academy".

Presentation of the main material. The Ukrainian Engineering and Pedagogical Academy provides both synchronous and asynchronous distance learning. The synchronous one includes classes that are scheduled. The teacher and students get in touch at a certain time using Google Meet, a video-telephony and video-conferencing service developed by Google. This service is one of the two programs that replaced Google Hangout and supports the demonstration of one user's desktop to others. The teacher acts as the organizer of the video conference. He or she notifies all students in the group about the synchronous online class by posting a link to the conference in the Moodle distance education system. This is a course management system, also known as a learning management system or virtual learning environment. It is a free web application that allows you to create websites for online learning. The students of the group go to the conference, the teacher sees everyone who is present in the class.

The teacher allocates time for an informational message, for independent filling in of tables and notes, for a discussion on the class materials, and for student presentations.

The quality of a synchronous online class is assessed by the following criteria

- timeliness of the beginning of the class;
- communicating to students the purpose and structure of the lesson (it is better if it is done together: teacher + students);
- use of elements of blended learning (synchronous and asynchronous);

- inclusion of tasks for independent search for information and processing of the received material;
- constant interaction between the teacher and students;
- joint analysis of the lesson, highlighting issues that were new to students, and assessing the degree of mastery.

The criteria can be supplemented depending on the purpose and type of classes. Different types of synchronous educational process organization are used. Classes can be held in the form of chat classes, where chat technologies are used. In this case, all participants have simultaneous access to the chat. Web classes are also interesting. These are remote classes, conferences, seminars, business games, laboratory work, workshops and other classes conducted using telecommunications and other Internet resources.

Teleconferences may also be held in synchronous mode.

The quality of synchronous classes is usually checked by the administration of the educational institution. To do this, a representative of the administration also observes the class in synchronous mode and may ask questions to clarify the perception of the course of study.

To implement synchronous and asynchronous distance learning, a teacher can develop an e-learning course (ELC) that addresses the content, sequence, forms and methods of online learning. This course can be presented on a distance education site for a group of students who study it. Using this educational information material, students can work in the distance learning system in both synchronous and asynchronous modes. In addition to the e-course, for the didactic and methodological support of students, the teacher develops multi-level tasks, problematic issues, tasks for independent acquisition of knowledge and ways of action, provides for conversations with individual students and mini-groups, which are divided into a general study group of higher education students. This methodological support of online classes is also subject to evaluation and ongoing adjustment to ensure the quality of distance learning. Methodological support is usually used in asynchronous mode at a time convenient for users, and can also be used by the teacher when conducting a synchronous online class. Let us consider the evaluation of the components of methodological support.

The quality assessment of an E-Learning course is carried out in several stages by different persons.

First, the course is self-evaluated by the instructors themselves - the authors of the course.

Based on the relevant regulations, they independently add the necessary elements to the course, thereby comparing the work performed with the planned academic requirements.

In most departments, the subsequent course evaluation and self-assessment of the quality of the department's courses is carried out by the person responsible for distance learning in the department. He or she informs teachers about the inconsistency of certain elements and identified problems. If the instructor does not correct the situation, he or she reports the problematic courses to the head of the department.

The main assessment of the quality of the EQA is carried out by the formed commission on the proposal of the Vice-Rector of the Academy. Attestation is based on an examination, which involves the evaluation of EQA by experts from three perspectives: structural and functional, content and scientific, and support. Each indicator in each examination has an agreed number of points that a teacher can receive for the course components. The peculiarity is that if the number of points (70) is insufficient, the teacher receives a negative reaction from the management and may lose the course.

In the proposed criteria, there are groups without which further evaluation makes no sense, because the course cannot be certified even if there are other good indicators and the total amount of points is more than critical. The second group of criteria should be present; if they are not, it is recommended that the course be revised, but the teacher will not receive severe sanctions, and the course will be conditionally certified if there are enough points for other indicators. The third group of criteria is not critically important, but their presence adds points and improves the teacher's grade. Here are the criteria used to evaluate the Department of Foreign Languages (Table 1) and all other departments (Table 2) at UIPA.

Table 1.

Completeness criteria (School of Foreign Languages)

No. s/n	Course element	Maximum grade	Criteria (note)
Mandatory group 1			
	Course summary	3	
	Work program of the course	5	
	Information about the authors	2	
	Audio and video materials for practical classes	20	In accordance with the WP, in proportion to the number of topics covered
	Practical tasks on the topics	20	In accordance with the WP, in proportion to the number of topics covered
	Independent tasks on topics	15	In accordance with the WP, in proportion to the number of topics covered
	Literature in the UIPA library, links to Internet sources	5	Hyperlinks to the rubric
	Correctly calculated points for educational elements	5	Corresponds to the course control
	Total score	75	
Mandatory group 2			
	System of control tasks	15	
	Methodical instructions for independent work of students	4	In accordance with the WP
	Methodical instructions for performing practical tasks	4	In accordance with the WP
	Diagnostic tools, evaluation criteria	2	
	Total score	25	
	Total score	100	
Additional groups 3			
	Dictionary (glossary)	5	In proportion to the number of topics covered
	Explanations for each week	5	
	Presentations on the topics	10	In proportion to the number of topics covered
	Lectures on topics, or educational and methodological support	10	In proportion to the number of topics covered

Structural and functional expertise involves analyzing the presence of mandatory components of the EQF. These components take into account the differences in the subjects taught at the departments, so they have different evaluation criteria.

Table 2.

Completeness criteria (all departments of the Academy)

No. s/n	Course element	Maximum grade	Criteria (note)
	Mandatory group 1		
	Course summary	3	
	Work program of the course	5	
	Information about the authors	2	
	Lectures on topics or teaching aids	20	In accordance with the WP, in proportion to the number of topics covered
	Practical and/or lab assignments with explanations (or references to the textbook)	20	In accordance with the WP, in proportion to the number of topics covered
	Tasks for independent work with explanations and examples for implementation (or links to the pages of the manual)	15	In accordance with the WP, in proportion to the number of topics covered
	Methodical instructions for the course work (course project)	15*	If available *Summed up to the grades of gr.3
	Literature in the UIPA library, links to Internet sources	5	Links to the rubric
	Correctly calculated points for educational elements	5	Corresponds to the course control
	Total score	75	
	Mandatory group 2		
	Dictionary (glossary)	3	
	Explanations for students for each week of work	5	
	System of control tasks	15	At least 30 options
	Evaluation criteria	2	
	Total score	25	
	Total score	100	
	Additional group 3		
	Presentations on topics	10	In proportion to the share of topics covered
	Video or audio material for classes (lectures, practical, laboratory)	10	In proportion to the number of topics covered
	Use of virtual laboratory (practical) works	20	In proportion to the number of provided works
	Sufficiently complete bank of test questions	10	Divided into categories, the bank has at least twice as many questions as the test, used pictures
	Electronic manual	15	Built into the course
	TOTAL ADDITIONAL POINTS	65+15*	*including course work

The examination of support involves the assessment of student learning outcomes: enrolled students, correctness of control dates, efficiency of the teacher's work, academic performance, etc. Here are the criteria by which the Department of Foreign Languages (Table 3) and all other departments (Table 4) are evaluated at UIPA.

Table 3.

Criteria for course support during the semester
(Department of Foreign Languages)

No. s/n	Evaluation criteria	Maximum rating	Note
	Mandatory		
1.	Enrolled Students	10	
2.	Correct task dates	15	For the current semester
3.	Timely verification of tasks	30	No more than calendar week delay
4.	Hyperlinks to Internet sources work correctly	5	
5.	Operational news and announcements	10	
6.	Student activity	30	Number of active students not less than 30 %
	Total score	100	
	Additional		
1.	Presence of comment in case of application of not maximum score per task	10	In the case of applying not the maximum score for the task, and the absence of the student on the software, LB
2.	Accounting for student attendance	5	Using the student attendance
3.	Feedback through surveys	5	
4.	Online Conference	10	1 once every 2 weeks - when immersed; or 1 once a month - during the semester
	Total score	30	

The ENC expertise is carried out by a group of specialists, which includes: a specialist in the subject area for the implementation of a substantive and scientific examination - a content expert; specialist in the methodology of organizing distance learning for the implementation of structural and functional examination and examination of support according to certain criteria (Table 4). As a result of their work, an expert opinion is drawn up. The expert opinion is submitted for consideration by the Academy's Commission

for the certification of the EQA. The Academy's EQA Commission is headed by the Vice-Rector, its composition is approved by the relevant order of the Rector of the Academy. The IEC specialists together with those responsible for distance learning at the UIPA departments ensure the submission of reports on the creation, use and periodic assessment of the quality of E-Learning materials.

E-Learning materials are evaluated after their approbation: fall semester courses in January-March; spring semester courses in June-August, and are certified for a period of 5 years. A fully formed EQF that corresponds to one academic discipline is accepted for certification. After the end of the academic semester, a report is drawn up on the basis of monitoring the use of EQA resources, which is the basis for determining the rating of teachers for the use of EQA in the educational process in accordance with the Time Standards for Planning and Accounting for Academic Work and the lists of the main types of methodological, scientific and organizational work of UIPA pedagogical and scientific-pedagogical staff. If the teaching of a discipline is provided for two or more semesters, it is recommended to develop and further certify separate ECQs for each semester. In this case, "spring semester, or "fall semester" is added to the full and short course title through a dot. The annotation of the E-Learning materials should indicate that this E-Learning material is part of the discipline.

The recertification of the E-Learning materials is carried out after the expiration of the 5-year period of its use. If the author of an E-Learning resource does not re-certify it within the specified timeframe, the use of the E-Learning resource is suspended in the next academic period until it is re-certified. If the course receives an unsatisfactory grade in the certification, the course is transferred to another teacher by the decision of the department meeting.

Table 4.

Criteria for accompanying the course during the semester
(all departments of the academy)

No. s/n	Evaluation criteria	Maximum rating	Note
	Mandatory group 1; teacher's activity		
1	Enrolled Students	10	
2	Correct task dates	10	For the current semester
3	Availability of a list of groups with student option numbers	5	For the current semester
4	Hyperlinks to Internet sources work correctly	5	
5	Timely verification of tasks sent to the DO or timely grading for classroom tasks	30	No more than calendar week delay
	Total score	60	
	Mandatory group 2; teacher's activity		
1	Presence of comments to the response sent to the DO	10	In the case of applying not the maximum score for the task, and the absence of the student on the software, LB
2	Submission of operational news, announcements	10	
	student's activity		
3	Student activity	20	Number of active students not less than 30%
	Total score	40	
	TOTAL AMOUNT	100	
	Additional group 3		
1	Accounting for student attendance	5	Using the student attendance
	Activity of teamwork in DO		
2	Online conference with students	10	1 once every 2 weeks - when immersed; or 1 once a month - during the semester
3	Feedback, survey in DO	5	
	Total score	20	

Procedure for certification of E-Learning materials:

- appointment of experts for EQA (based on the decision of the Academy's EQA Commission); they usually include members of this commission - Academy teachers who are fluent in the process of forming distance education courses; distribution for inspection of faculties and departments is carried out by random methods, subject to the condition - not to inspect the faculty and department where the expert works (to maintain the objectivity of the results);

- the examination is carried out in accordance with the Regulations [11; 12; 13; 14]; the results are announced to the departments in advance and a five-day period is given to correct the situation or appeal in case of disagreement with the results of the certification; after completion of all processes (dispute resolution and receipt of optimized courses), the commission makes the final decision on the certification of courses;

- a positive decision of the Academy's commission on the certification of E-Learning materials, formed on the basis of expert opinions and presentation of the E-Learning materials by the author, is the basis for granting the course certification and its further use in the educational process (the teacher has the right to create a copy of the certified E-Learning materials in case of teaching the discipline for different specialties, different forms of education, full and shortened period of study, etc.)

In recent years, about two dozen courses at the Academy have not been certified. However, most of them concerned courses for so-called small groups or courses of special (technical) disciplines.

This was due to certain difficulties of teachers in converting complex graphic material into electronic form. Therefore, these courses were transferred to other teachers.

The main disadvantages of many of the Academy's distance courses are as follows:

1.The lack of electronic textbooks, the division of lectures into HTML pages, which makes it difficult to download texts for study, requires additional reference to the content of course topics, etc;

2,Glossaries (dictionaries) are in text format, not in the appropriate electronic form offered in the Moodle shell. This does not allow for effective use of the dictionary, as it does not allow for cross-referencing from the texts of lectures and other assignments to the glossary (as provided by the program when using the glossary according to the rules);

3.Work programs do not always change to the current ones, so students do not always understand the number of hours allocated for certain types of classes;

4.Lack of assessment criteria in many courses, competencies that students develop while performing this task, both for control tasks and for current and independent tasks - which makes it difficult for students to ensure the quality of work and does not explain the teacher's expectations of the result of their educational activities;

5.Many courses do not have diagnostic tools, which prevents students from effectively preparing for the final test of their knowledge;

6.Practical and independent assignments do not always have individual tasks, which allows students to not fulfill them conscientiously, but to ask their classmates for "help", thereby worsening the quality of education;

7.Test tasks are designed in a rather uniform form, although they have an expanded number of forms of submission, which simplifies the level of control tasks and worsens the quality of student learning;

8.The teacher does not always check assignments in a timely manner, which reduces the student's interest in the learning process;

9.With a large number of practical and/or independent tasks, the number of points for one task is very small, which reduces the activity of students in completing them (the motivational component of the educational process decreases).

The analysis of the content and quality of distance learning in general, distance courses, students' and teachers' work, and the quality of distance education at UIPA shows a satisfactory, but not optimal assessment. There are a significant number of components that can and should be improved. Most of them do not require additional expenditures, and some require very little time from the course authors to improve their content and quality of use.

Therefore, we see the need for a number of organizational, controlling, and motivational measures within higher education institutions to optimize the content and process of using distance education as an effective component of the educational process.

Conclusions and Prospects for Further Research.

In the course of the study of the organization of the educational process at the Ukrainian Engineering and Pedagogical Academy with the use of distance courses, the following conclusions were made.

Classes are conducted in synchronous and asynchronous modes. To ensure the quality of distance learning, the criteria for conducting synchronous online classes and evaluation/examination of methodological support for distance education are identified. It is established that to improve the quality of online classes, it is advisable to combine synchronous and asynchronous modes.

The analysis of the quality of methodological materials developed by the academy's teachers has revealed that:

The documentary and legal support for the use of distance learning courses in educational processes for full-time and part-time students is formally complete. The HEI has created a regulation that regulates all components of the process - from the content of courses to the process of their application and control. It clearly spells out the differences in course content for full-time and part-time students, and provides recommendations for the formation of each course element. The Regulation provides for the formation of control bodies and the mechanism of their action regarding positive and negative results of inspections. The work of each teacher is based on the standard time for working with distance learning courses, which ensures fair consideration of their employment.

At the same time, there are a number of problems that impair the effectiveness of using distance courses in the process of quality education of students.

On the part of students, these are:

1.Uneven use of courses, which worsens the quality of their learning;

2.Infrequent use of courses or ignoring them, which affects academic performance and leads to

further additional counseling sessions with the teacher;

3. Cheating when answering independent (test) tasks of the courses (with the help of reference books, consultations with other students, etc.)

On the part of teachers, this is:

4. Inadequate content of the course with relevant materials (lack of key elements);

5. Filling the course with inappropriate material (outdated, irrelevant);

6. Simplifying the presentation of independent tasks and tests;

7. Incorrect hyperlinks to materials;

8. Exceeding the amount of independent work in relation to the students' ability to complete independent tasks;

9. Failure to timely check the tasks submitted by students;

10. Lack of feedback from students and lack of explanations for their grades, etc.

On the part of the administration:

11. Lack of a tough reaction to violations of teachers regarding course content and work with students;

12. Lack of mandatory requirements to improve the Internet literacy of teachers;

13. Insufficient number of internal training programs (courses) to improve skills in using the Moodle distance learning environment.

All of this impairs the ability to obtain results from distance learning and removes the potential for licensing distance learning programs in certain specialties (educational programs). Therefore, there is an urgent need to significantly improve both the content of distance learning courses and the mechanism of their use and control, which will improve the quality of distance learning.

Список використаних джерел

1. Биков В. Ю. Моделі організаційних систем відкритої освіти : монографія / В. Ю. Биков. Київ : Атіка, 2009. 684 с.

2. Дистанційне навчання в країнах Європи та США і перспективи для України. Інформаційне забезпечення навчально-виховного процесу: інноваційні засоби і технології : кол. монографія / Биков В. Ю., Гриценчук О. О., Жук Ю. О. та ін. ; Акад. пед. наук України, Ін-т засобів навчання. – Київ : Атіка, 2015. – С. 77–140.

3. Васильченко Л. В. Дистанційна освіта: пошуки і проблеми [Електронний ресурс] / Л. В. Васильченко. Режим доступу : http://www.pres.in.ua/distancijna-osvita-poshuki-i-problemi.html (дата звернення 05.01.2023) .

4. Грушина І. В. Теоретичні та методологічні основи використання дистанційних технологій в контексті змішаного навчання / І. В. Грушина // Наукові записки. Серія: Проблеми методики фізико-математичної і технологічної освіти. 2016. Вип. 10 (1). – С. 28–34.

5. Дистанційне навчання як сучасна освітня технологія [Електронний ресурс] : матеріали міжвузівського вебінару (м. Вінниця, 31 берез. 2017 р.) / відп. ред. Л. Б. Ліщинська. – Вінниця : ВТЕІ КНТЕУ, 2017. – 102 с. – Режим доступу : http://www.vtei.com.ua/images/VN/31_03.pdf (дата звернення 05.01.2023)

6. Козак Л. В. Дослідження інноваційних моделей навчання у вищій школі // Освітологічний дискурс. – 2014. – № 1 (5). – Режим доступу : http://elibrary.kubg.edu.ua/4280/1/Kozak_LV_Doslidjennya_innov_mod_2014.pdf (дата звернення 05.01.2023)

7. Морзе Н. В. Моделі ефективного використання інформаційно-комунікаційних та дистанційних технологій навчання у вищому навчальному закладі [Електронний ресурс] / Н. В. Морзе, О. Г. Глазунова // Інформаційні технології і засоби навчання. – 2008. – № 2(6). – Режим доступу : http://www.ime.eduua (дата звернення 10.01.2023)

8. Муліна Н. І. Управління якістю дистанційної освіти у практиці українського університету [Електронний ресурс] / Н. І. Муліна // Педагогічна наука: історія, теорія, практика, тенденції розвитку. – 2009. – № 1. – Режим доступу : http://intellect-invest.org.ua/pedagog_editions_e-magazine_pedagogical_science_arhiv_pn_n1_2009_st_19/ (дата звернення 10.01.2023)

9. Організація дистанційного навчання. Створення електронних навчальних курсів та електронних тестів : навч. посібн. / В. В. Вишнівський, М. П. Гніденко, Г. І. Гайдур, О. О. Ільїн. – Київ : ДУТ, 2014. – 140 с.

10. Положення про навчальний портал Української інженерно-педагогічної академії [Електронний ресурс]. – Режим доступу : https://drive.google.com/file/d/1nITb8RhP956uo0wQSTfNeIobMsq7zN4E/view (дата звернення 10.01.2023)

11. Положення про організацію освітнього процесу в Українській інженерно-педагогічній академії [Електронний ресурс] : затвердж. рішенням Вченої ради академії від 24.06.2015 р. протокол № 11, наказом ректора від 03.09.2015 р. № 321. – Режим доступу: (дата звернення 10.01.2023)

12. Положення про систему забезпечення якості освітньої діяльності та якості вищої освіти (систему внутрішнього забезпечення якості) Української інженерно-педагогічної академії [Електронний ресурс] : затвердж. рішенням Вченої ради академії від 03.09.15 р. протокол № 3, наказом ректора від 03.09.2015 р. № 321. – Режим доступу : (дата звернення 10.01.2023)

13. Положення про дистанційне навчання [Електронний ресурс] : наказ М-ва освіти і науки України від 25.04.2013 р. № 466 Режим доступу : http://zakon2.rada.gov.ua/laws/show/z0703-13#Text (дата звернення 10.01.2023)

14. Положення про електронні освітні ресурси [Електронний ресурс] : наказ М-ва науки і освіти, молоді та спорту України від 01.10.2012 № 1060. – Режим доступу : http://zakon2.rada.gov.ua/laws/show/z1695-12#n13. (дата звернення 10.01.2023)

15. Система внутрішнього забезпечення якості освітньої діяльності та якості вищої освіти в Українській інженерно-педагогічній академії : затвердж. рішенням Вченої ради академії від 27.10.2015 р. протокол № 5, наказом ректора від 27.10.2015 р. № 434. – Режим доступу : (дата звернення 10.01.2023)

References.

1. Bykov, VYu 2009, *Modeli orhanizatsiinykh system vidkrytoi osvity [Models of organizational systems for open education],* Atika, Kyiv.

2. Bykov, VYu, Hrytsenchuk, OO, Zhuk, you, et al 2015, *Dystantsiine navchannia v krainakh Yevropy ta SShA i perspektyvy dlia Ukrainy. Informatsiine zabezpechennia navchalno-vykhovnoho protsesu: innovatsiini zasoby i tekhnolohii [Distance learning in Europe and the USA and prospects for Ukraine. Informational support of the educational process: innovative tools and technologies: a collective monograph],* Atika, Kyiv.

3. Vasylchenko, LV nd, *Dystantsiina osvita: poshuky i problemy [Distance education: research and problems],* viewed 05 January 2023 <http://www.pres.in.ua/distancijna-osvita-poshuki-i-problemi.html>.

4. Hrushyna, IV 2016, 'Teoretychni ta metodolohichni osnovy vykorystannia dystantsiinykh tekhnolohii v konteksti zmishanoho navchannia' *[Theoretical and methodological foundations of using distance technologies in the context of blended learning], Naukovi zapysky. Seriia: Problemy metodyky fizyko-matematychnoi i tekhnolohichnoi osvity,* iss. 10, Pp. 28–34.

5. Lishchynska, LB (ed) 2017, *Dystantsiine navchannia yak suchasna osvitnia tekhnolohiia [Elektronnyi resurs] : materialy mizhvuzivskoho vebinaru (m. Vinnytsia, 31 berez. 2017 r.), [Distance learning as a modern educational technology],* viewed 05 January 2023 <http://www.vtei.com.ua/images/VN/31_03.pdf>

6. Kozak, LV 2014, 'Doslidzhennia innovatsiinykh modelei navchannia u vyshchii shkoli' *[Research on innovative teaching models in higher education], Osvitolohichnyi dyskurs,* no 1, viewed 05 January 2023 <http://elibrary.kubg.edu.ua/4280/1/Kozak_LV_Doslidjennya_innov_mod_2014.pdf>

7. Morze, NV & Hlazunova, OH 2008, 'Modeli efektyvnoho vykorystannia informatsiino-komunikatsiinykh ta dystantsiinykh tekhnolohii navchannia u vyshchomu navchalnomu zakladi' *[Models of effective application of information and communication and distance learning technologies in higher education], Informatsiini tekhnolohii i zasoby navchannia,* no 2, viewed 10 January 2023 <http://www.ime.eduua>

8. Mulina, NI 2009, 'Upravlinnia yakistiu dystantsiinoi osvity u praktytsi ukrainskoho universytetu' *[Quality management of distance education in the practice of a Ukrainian university], Pedahohichna nauka: istoriia, teoriia, praktyka, tendentsii rozvytku,* no 1, viewed 10 January 2023 <http://intellect-invest.org.ua/pedagog_editions_e-magazine_pedagogical_science_arhiv_pn_n1_2009_st_19/>

9. Vyshnivskyi, VV, Hnidenko, MP, Haidur, HI & Ilin, OO 2014, *Orhanizatsiia dystantsiinoho navchannia. Stvorennia elektronnykh navchalnykh kursiv ta elektronnykh testiv, [Organization of distance learning. Creating e-learning courses and e-tests],* DUT, Kyiv.

10. Ukrainska inzhenerno-pedahohichna akademiya n.d., *Polozhennia pro navchalnyi portal Ukrainskoi inzhenerno-pedahohichnoi akademii [Regulations on the educational portal of the Ukrainian Engineering Pedagogics Academy],* viewed 10 January 2023 <https://drive.google.com/file/d/1nITb8RhP956uo0wQSTfNeIobMsq7zN4E/view>

11. Ukrainska inzhenerno-pedahohichna akademiya 2015, *Polozhennia pro orhanizatsiiu osvitnoho protsesu v Ukrainskii inzhenerno-pedahohichnii akademii [Regulations on the organization of the educational process in the Ukrainian Engineering Pedagogics Academy],* viewed 10 January 2023 < >

12. Ukrainska inzhenerno-pedahohichna akademiya 2015, *Polozhennia pro systemu zabezpechennia yakosti osvitnoi diialnosti ta yakosti vyshchoi osvity (systemu vnutrishnoho zabezpechennia yakosti) Ukrainskoi inzhenerno-pedahohichnoi akademii [Regulations on the system of quality assurance of educational activities and quality of higher education (internal quality assurance system) of the Ukrainian Engineering Pedagogics Academy],* viewed 10 January 2023 < >

13. Ministerstvo osvity i nauky Ukrainy 2013, Polozhennia pro dystantsiine navchannia : nakaz vid 25.04.2013 r. № 466 *[Regulations on distance learning: Order of the Ministry of Education and Science of Ukraine of 25.04.2013 No. 466],* viewed 10 January 2023 < >

14. Ministerstvo nauky i osvity, molodi ta sportu Ukrainy 2012, Polozhennia pro elektronni osvitni resursy : nakaz vid 01.10.2012 № 1060 *[Regulations on electronic educational resources: order of the Ministry of Science and Education, Youth and Sports of Ukraine of 01.10.2012 No. 1060.],* viewed 10 January 2023 <http://zakon2.rada.gov.ua/laws/show/z1695-12#n13>

15. Ukrainska inzhenerno-pedahohichna akademiya 2015, Systema vnutrishnoho zabezpechennia yakosti osvitnoi diialnosti ta yakosti vyshchoi osvity v Ukrainskii inzhenerno-pedahohichnii akademii *[System of internal quality assurance of educational activities and quality of higher education in the Ukrainian Engineering Pedagogics Academy: approved by the decision of the Academic Council of the Academy of 27.10.2015, protocol No. 5, order of the rector of 27.10.2015 No. 434],* viewed 10 January 2023 < >.

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