

1.2 The organization of the educational process in institutions of general secondary education in the conditions of martial law based on the example of practice of Lviv region teachers

Summary. The article examines the peculiarities of the organization of distance education and the role of the Ukrainian teacher in the conditions of martial law from February 24, 2022. Important questions regarding the creation of a single effective e-environment for high-quality distance education in Lviv Oblast and Ukraine, in particular, were described. Attention was focused on the creation of the first volunteer project of the Ukrainian Distance School (UDS) in Ukraine for pupils of grades 5-11 who found themselves in the war zone, moved to another region of Ukraine or abroad and cannot continue their studies at their native school. The expediency of using the LMS Moodle educational platform for pupils and teachers of general secondary education has been analyzed and substantiated. Features of lesson organization using various Moodle resources and activities were demonstrated.

Keywords: distance learning, LMS Moodle, Ukrainian distance school, e-environment.

INTRODUCTION

You never know what happens tomorrow...Just like that... Most Ukrainians probably start their stories or conversations after February 24, 2022. This date created the beginning of a new cruel historical fate of the entire UKRAINIAN PEOPLE. There is not a single field of activity that was not affected by these terrible events, which brought serious changes to their further development. Education is one of the main areas that has been terribly affected by the intervention of the Russian invaders. As a result, not only the continuation of education in the online format, but also the destruction of the premises of educational institutions, the loss of teaching staff and students due to their evacuation and departure abroad, and worst of all, the death of the participants of the educational process.

These are the terrible facts of today's Ukrainian nation, a nation of unconquered patriots and winners. In spite of such horrors caused by the occupiers, our Ukrainian

schools went on and continue to work, as they are staffed by dedicated specialists who give the lion's share of their time to study and educate the UKRAINIAN YOUTH.

That is why it is now very important to make a detailed analysis of the education of schoolchildren in order to understand how learning took place in the spring semester of 2021-2022 AD, what difficulties teachers had to face and what solutions can be offered for the future. After the end of the war, teachers will have an even greater responsibility, as they will have to make up for the gaps that, unfortunately, arose in educational work. Teachers will have a lot of work to restore a full face-to-face learning format, as well as communication with students and returning them to school desks.

In this publication, the authors, teachers from the Lviv region, shared their experience and practical skills from working in the Ukrainian Distance School, which was organized from the first days of the war and has proven itself well.

On February 24, 2022, Russia's large-scale invasion of Ukraine began. This is one of the most critical periods in the Russian-Ukrainian war, which has been ongoing since 2014. In 100 days of full-scale war, Russian troops destroyed 180 educational institutions. Another 1,708 were damaged. Kharkiv region suffered the most destruction: 370 institutions were damaged, 52 were destroyed [11].

As of May 31, 2022, because of the Russian attack on Ukraine, 830 institutions of general secondary education were damaged, 111 were completely destroyed [12]. According to Yuriy Kononenko, head of the General, Secondary and Preschool Education Department of the Ministry of Education and Science of Ukraine, at the end of May, about 26,000 Ukrainian teachers and 670,000 students went abroad. At the same time, almost 88,000 students moved to other regions of Ukraine, mostly to the Lviv region [13]. Therefore, in the conditions of martial law, educators are forced to accept new challenges caused by Russia's aggression against our people.

As a result of the Russian-Ukrainian war, a new problem arose as to how to teach and train participants in the general education process. Many school-age children lost the opportunity to attend their educational institutions due to the destruction of educational buildings and premises by the opponents. In addition, the children were subjected to powerful emotional trauma. They witnessed artillery shelling and street

shooting, watched the destruction of their hometown, village or their own homes. Children could see injured or dead people, torture or murder, mass death of people, and experience additional emotional stress by witnessing injury or death of their family members or friends [14]. Children see terrible scenes of fighting. This leads to the fact that schoolchildren become irritable, restless and timid. They are afraid of the loud sounds of air raid sirens, lose interest in what they used to do, and have difficulty concentrating on their studies. All this has a negative impact on the child's emotional health. Therefore, the lack of outside help, in particular, a teacher, has a detrimental effect on a child's life at home, at school, and in society.

In order to ensure the safety of all participants in the educational process, from February 25, 2022, the Ministry of Education and Culture sent a letter to the heads of the departments of education and science of the regional and Kyiv city state administrations and to the heads of institutions of professional, professional pre-higher and higher education with a recommendation to stop the educational process in all educational institutions and announcement of vacation for two weeks. However, from March 14, 2022, the educational process in Ukraine resumed and switched to the distance-learning format. Teachers, as organizers of distance learning, faced the need to immediately adjust their activities to the conditions of today. Therefore, digitization of educational processes became a chance for millions of Ukrainian schoolchildren to continue to receive quality knowledge in Ukrainian schools, which means to continue to be closely connected with their MOTHERLAND [15]. However, taking into account the fact that teachers have been using distance learning during the Covid-19 quarantine for the past two years, this has allowed them to easily adapt to the terrible realities of war.

Here, teachers who were preparing for the implementation of the NUS (“New Ukrainian School”) concept starting in September 2022, had already to show themselves in new roles as a teacher, tutor, mentor, facilitator, innovator, moderator and coach [16]. The role of the teacher in the state has become dominant and has acquired considerable importance. The teacher was now equated with a psychologist, because the children also needed moral support. They witnessed military actions, their

worldview changed. Teachers focused on the emotional state of schoolchildren and contributed to the creation of a comfortable feeling of a normal, peaceful life with the help of remote lessons.

Teachers have a task to understand what the result of a complete general secondary education should be and to choose for their professional activities such technologies, means, teaching methods, forms of organization of students' educational activities, which will really be effective in achieving this result in the conditions of martial law. That is, when preparing for classes with students, the teacher should think every time: "The style of pedagogical communication with students, tasks, methods and means of learning, forms of organization of students' educational activities that I will use today, will contribute to the achievement of this result or not?"

The teacher's attention will shift from the assessment and baggage of unnecessary overloaded theoretical knowledge to the personality of the child, which is one of the key tasks in the concept of the NUS. Teachers have new tasks:

- Adapt educational programs for distance learning in martial law conditions;
- Choose textbooks and other learning tools that would be the best to use during distance learning;
- Introduce innovative technologies, teaching methods, modern forms of organization of students' educational activities;
- Create a modern lesson, without overloading with theoretical material;
- Adhere to the pedagogy of partnership between teachers, students and their parents;
- Introduce person-oriented and competence-based approaches to the management of the educational process.

Thus, the organization of distance learning, which began on March 14, had certain features:

- Teaching children who have an unbalanced emotional state;
- Organize classes when the air alarm sounds;

- Provide educational material so that the child has access 24/7 in various ways: on-line, off-line;
- The material presented during the lesson should be concise, not difficult to understand, not saturated with written tasks;
- Ensure the presence of the teacher, by conducting consultations, as well as maintain contact with students through communication via e-mail, social networks, online messengers (Viber, Telegram, WhatsApp, Signal, Messenger), forums;
- Formation of tasks that are clear, easy to understand, necessarily based on the material presented.
- Take into account the material and technical support of each student, regardless of his place of stay;
- Education of children who are abroad and cannot participate in the educational process in their educational institution due to time constraints.

Distance (online) form of education is not a new form of conducting lessons with students. It has been used for a long time in leading educational institutions of European countries and America. On the territory of Ukrainian educational institutions, it began to be widely implemented during the period of mass diseases of people in the world, including in Ukraine, in connection with the COVID-19 pandemic, since quarantine measures were initiated with it and the transition of educators to the widespread use of information-communication technologies. This made it possible not to stop the educational process, but to bring it to the level of a digital format, and thereby contribute to even faster introduction of new developments of teachers into the educational process. Initially, teaching staff turned to various platforms for help when conducting lessons [14, 17-22]. The use of online platforms is appropriate in peacetime, when the teacher and student can simultaneously participate in the educational process. The wartime forced teachers to look for opportunities to conduct training in slightly different formats, so that the student, at any convenient time, could receive complete information on the topic of the subject, study it, take appropriate control tests or tasks, submit the completed work for verification and receive an

answer-evaluation for completed work with the teacher's comment. That is, there was a need to organize a single effective e-environment for high-quality and unified distance education in schools.

Therefore, at the initiative of the Center for Innovative Educational Technologies of the National University "Lviv Polytechnic" (NULP) during 2020-2021, an effective system of training educational institutions for the deployment, launch and use of the remote platform Moodle (Modular Object-Oriented Dynamic Learning Environment) was developed. In particular, teachers of the Lviv region were trained in 2021 as part of the implementation of the regional educational project "Moodle – it's simple!" («Moodle – це просто!»), as a result of which more than 2.8 thousand teachers were trained, and 100 remote platforms were implemented in educational institutions of the Lviv region. Under the conditions of martial law, the "Moodle – it's simple!" platform demonstrated its effectiveness and efficiency [23].

On March 1, 2022, the idea of creating a volunteer project of the Ukrainian Distance School (UDS) was born for students of grades 5-11 who found themselves in the war zone, moved to another region of Ukraine or abroad and cannot continue their studies at their native school. The initiators of the creation of UDS were the director of the Department of Education and Science of the Lviv Regional Military Administration Oleh Paska and the director of the Center for Innovative Educational Technologies of the Lviv Polytechnic National University Marharyta Noskova. The technical implementer of the functioning of the school in the information and digital format with the involvement of the Moodle platform was the deputy director of the Center for Testing and Diagnostics of Knowledge of the National University "Lviv Polytechnic" Taras Chaikivskyi. 70% of UDS teachers are the pedagogues of Lviv region, who participated in the project "Moodle – it's simple!" received training at advanced training courses [23]. The teachers of UDS had to show their pedagogical flexibility, competence and awareness. Teachers had to improve their skills in the use and implementation of remote technologies in the educational process, work on their professional development. The work of the teachers was exclusively voluntary and was carried out on the enthusiasm of the teachers. It was on this basis that not only teachers,

but also pedagogues of higher educational institutions gathered, who in such a difficult period found the opportunity to create lessons in accordance with the program, form tasks for tests and control the students' knowledge and skills. The priority of UDS teachers was to establish feedback with students using the resources of the LMS (Learning Management System) Moodle platform.

Information about the creation of the UDS was posted on social networks, in particular on Facebook, later a public group was created (URL: <https://www.facebook.com/groups/1201620603933067/>). The number of participants in the educational process was constantly growing, which prompted system administrators to constant and tireless work, temporary (reserve) changes of the school address (participants were warned about this in advance) and the appearance of the page (Fig. 1). Such measures were necessary to ensure uninterrupted operation of the site.

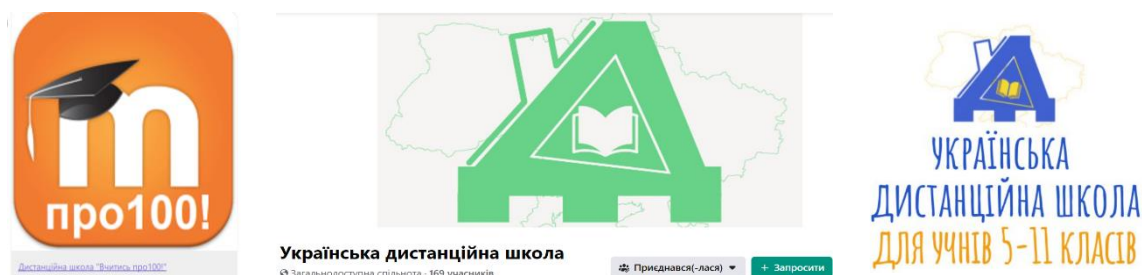


Figure 1. Changes of the logo appearances of the Ukrainian Distance School.

The LMS Moodle platform, which is developing quite quickly and already has almost 130 million users worldwide [18, 21], became the platform for learning at the UDS. The popularity, relevance and expediency of using this platform in difficult times for Ukraine can be explained by the following [17-19, 24, 25]:

- Modularity and scalability;
- Clear accounting and personalization of education seekers, regardless of their location and use of technical means (computer, mobile phone);
- Distinguishing access rights of participants of the educational process (teachers and students) to educational materials;
- Creating and conducting online classes (lessons, consultations, laboratory, practical);

- Possibility of keeping clear statistics and full reporting on each participant of the educational subject;
- Clear control of student activity in the lesson and on the course;
- Establishing the necessary deadlines for students to complete tasks and assessing the level of their knowledge;
- Feedback from students, questionnaires and creation of surveys.

One of the advantages of Moodle is its high compatibility with the system for creating video conferences BigBlueButton (BBB) (Fig. 2). Within the BBB, users can also show online presentations in many common formats (e.g. OpenOffice/LibreOffice presentations, PDF, OpenDocument, etc.) and broadcast their PC desktop view to the system's shared screen. In addition, the Moodle and BBB integration plugin consists of two parts: BigBlueButtonBN, which provides access from Moodle to BBB sessions using users' credentials and rights, and RecordingsBN - which provides access to recordings made during sessions [26].

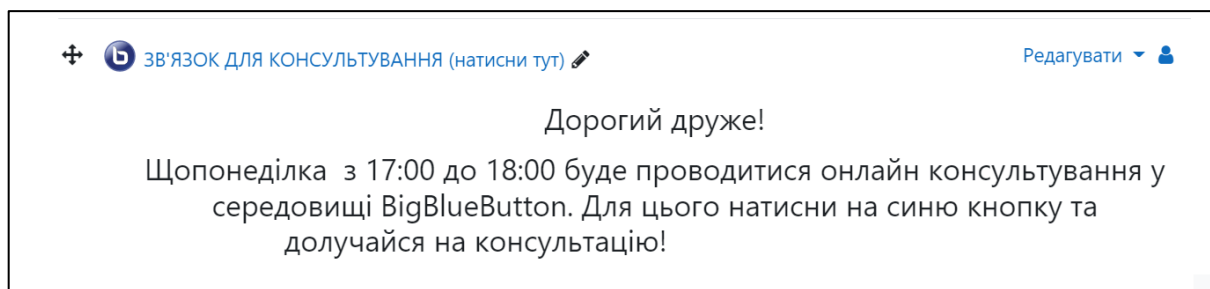


Figure 2. BigBlueButton (BBB) element in LMS Moodle as a means of video communication between teacher and student

LMS Moodle stands out from other platforms for distance learning due to its simplicity and ease of use for both students and teachers, regardless of their locations. The use of LMS Moodle elements and resources makes it possible to create high-quality lessons on any subject for students of general secondary education institutions. Taking into account the specifics of conducting lessons at UDSH, classes were formed according to certain original templates within certain courses that corresponded to the subject being studied. Each subject corresponded to a separate course on the Moodle

platform. The following information was indicated in the "General" section of the course (Fig. 3):

- 1) The name of the school subject and the class for which the subject was created;
- 2) Addition of the "News" element, which contained current and new course information;
- 3) Instructions for students on how to work on the course;
- 4) A list of electronic versions of school textbooks on a certain subject;
- 5) Current curriculum for general educational institutions approved by order of the Ministry of Education and Science of Ukraine;
- 6) BBB element, for video communication with students;
- 7) Schedule of classes and consultations;
- 8) Information about the teacher teaching this course.

The screenshot shows the 'General' section of a 'Chemistry' course for 8th grade. The interface includes a sidebar with navigation links and a main content area with various elements. Red boxes and blue arrows highlight specific features corresponding to the list in Figure 3:

- назву шкільного предмету та клас**: Points to the course title 'ХІМІЯ 8 КЛАС'.
- елемент «Новини»**: Points to the 'новини курсу' (course news) section.
- інструкції для учнів**: Points to the 'Інструкції для учнів з курсу хімії 8 клас' (instructions for students) section.
- перелік підручників**: Points to the 'Підручники хімії 8 клас' (textbooks) section.
- навчальна програма**: Points to the 'Навчальна програма з курсу хімії для 7-9 класу' (curriculum) section.
- елемент BBB**: Points to the 'Зв'язок для консультацій (натисни тут)' (video communication link) section.
- розклад занять та консультацій**: Points to the 'Розклад уроків' (lesson schedule) and 'Розклад консультацій' (consultation schedule) sections.
- інформація про вчителя**: Points to the 'Інформація про вчителя' (teacher information) section.

Figure 3. Structure in the "General" section of the "Chemistry" course for the 8th grade

In a certain course, each section corresponded to a separate lesson on a subject and included the following mandatory elements (Fig. 4):

1. Numbering of the lesson set by the teacher and its topic;
2. Purpose and expected results for the lesson;
3. Express tasks for the student and updating knowledge from the previous topic of the lesson;
4. Presentation of new material by submitting a presentation, video, audio, synopsis, etc.;
5. Tasks for the student's independent work, indicating a clear evaluation system and the final date of its completion;
6. Forum for reflection in the form of questions, suggestions, wishes from students.

Figure 4. The structure of a typical UDS lesson in LMS Moodle (on the example of the "Chemistry" course for the 8th grade)

For the successful presentation of educational material by the teacher during distance learning, not only descriptive materials (textbooks, notebooks on a printed

basis), but also developed presentations and videos with a detailed explanation of both theoretical and practical material are useful. All this can be placed on the Moodle platform thanks to the appropriate activities and resources (Fig. 5).



Figure 5. Types of activities (A) and resources (B) of the LMS Moodle platform

Using the resources "Page", "Folder", "File" (Fig. 5) it is possible to give the student access to the necessary basic and auxiliary material, which will be useful during training. This also facilitates the student's work, since he no longer needs to search for theoretical or practical material, which in war conditions can be quite difficult due to the lack of Internet connection, the destruction of schools, libraries, etc. To place video material for a specific lesson, teachers used the "URL (web link)" resource. The students were able to watch the video multiple times, carefully refine the relevant topic, and increase the probability of completing the homework correctly by using the specified URL-links. With the help of the "Task" activity, the teacher can create tasks for the students that require a written response from the student and the teacher's direct participation in order to check, evaluate and provide feedback on the completed work. The "Test" resource provides for the formation of various test tasks and the display of the result immediately after its completion. As the observations of the students' activity showed, the "Test" resource was the most convenient for the majority of the participants of the UDS. These types of activities facilitate the teacher's work, as there is a possibility of automated assessment of students' knowledge.

Another advantage of LMS Moodle among other platforms is the possibility of keeping an electronic journal of academic work for each student of UDS. In this way, the results of students' work are displayed in the form of a 12-point system for each type of activity "Task", "Test", "Forum", which is evaluated both automatically and manually by the teacher (Fig. 6). Each student of secondary education at UDS was shown a journal for a separate course where he studied. The journal contained grades for each type of activity, based on which thematic, semester and annual grades were derived, taking into account the recommendations in accordance with the order of the Ministry of Education and Culture No. 290 of April 1, 2022.

Звіт по користувачу у курсі - Шаловило Юлія Ігорівна

Переглянути звіт Звіт по користувачу у курсі

Елемент оцінювання	Обрахована значимість	Оцінка	Інтервал	Відсоток	Відгук	Внесок у підсумок курсу
Хімія						
Тематична 2 (						
Виконати завдання на тему "Тенетичні зв'язки між основними класами неорганічних сполук".	0,00 % (Порожньо)	-	0-12	-	0 %	
Домашнє завдання 1 за темою "Дослідження властивостей основних класів неорганічних сполук".	0,00 % (Порожньо)	-	0-12	-	0 %	
Домашнє завдання 2 за темою "Дослідження властивостей основних класів неорганічних сполук".	0,00 % (Порожньо)	-	0-12	-	0 %	
Домашнє завдання за темою "Розв'язування експериментальних задач".	0,00 % (Порожньо)	-	0-12	-	0 %	
Домашнє завдання за темою "Розрахунок за хімічними рівняннями маси, об'єму, кількості речовини реагентів та продуктів реакції".	-	-	0-12	-	-	
Спробуй свої сили!!!	0,00 % (Порожньо)	-	0-12	-	0 %	
Тематична 2 (загалом Враховати порожні оцінки.	0,00 % (Порожньо)	-	0-60	-	-	
Підсумковий тест з курсу "Хімія", 8 клас (II семестр).	-	0	0-12	0 %	-	
Загальне за курс	-	-	0-142	-	-	

Figure 6. An example of displaying a report of grades for an individual user of the UDS course.

By using the "Journal of evaluations" option, the teacher can generate complete information about each student regarding his history of grades, learning results, etc. The obtained information is easy to provide and explain in case of certain misunderstandings between the participants of the educational process.

It should be noted the importance of the "Calendar" option (Fig. 7). Since the participants of the educational process do not have the opportunity to meet face-to-face or even online, the teacher always notes the main important dates related to the educational process in the calendar. In this way, the student always has complete information about the terms of study, the dates of thematic and semester tests.

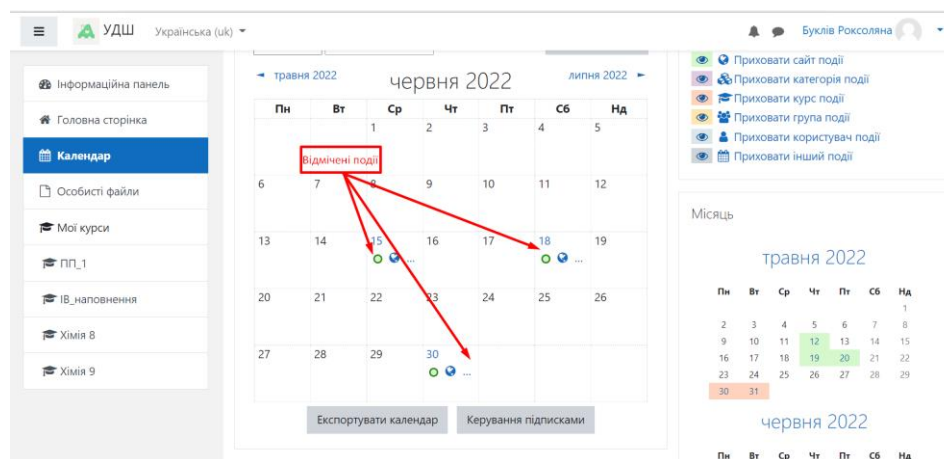


Figure 7. “Calendar” option in LMS Moodle.

It should be noted that the work of the teachers at the distance school of the UDSH was highly appreciated by students and parents. They were happy to comment on the teachers' work and rated it as the best (Fig. 8).

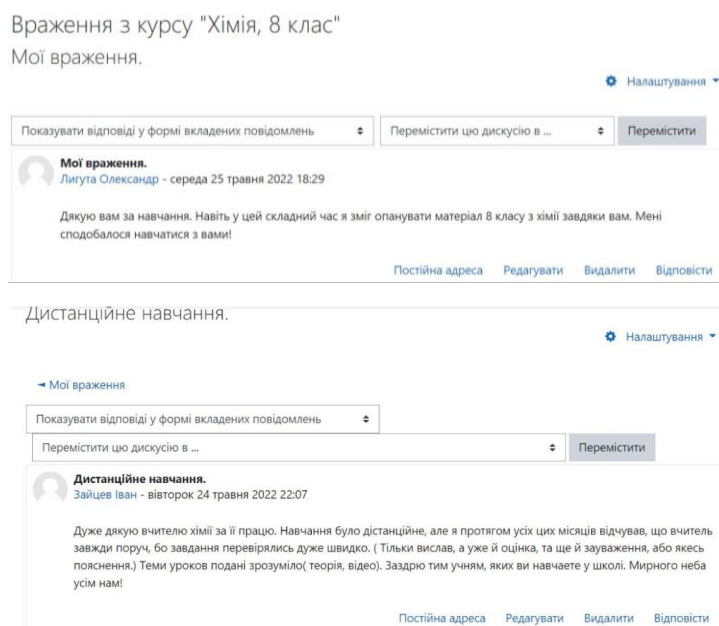


Figure 8. Students’ feedback about studying at UDS.

Therefore, summarizing the key points of this scientific work, the following conclusions can be drawn.

References

First of all, despite the circumstances prevailing in the state during the Russian-Ukrainian war, the educational sector, in particular, the general secondary sector

continues to function in the future. Teachers demonstrate their professional flexibility by adapting their work skills to distance education and demonstrating interactive mastery of work on various educational platforms.

Secondly, ensuring high-quality distance learning in the Lviv region, the Center for Innovative Educational Technologies of the National University "Lviv Polytechnic" introduced the creation of a single educational e-environment as part of the implementation of the regional educational project "Moodle – it's simple!".

Thirdly, taking into account the need to educate children who found themselves in the war zone, moved to another region of Ukraine or abroad and cannot continue their education in their native school, the creation of the UDS was initiated. The LMS Moodle environment became the platform for work and learning in the distance school. This remote platform became the most convenient and effective in teaching students of grades 1-11, where teachers, using various LMS Moodle resources and tools, were able to organize modern and high-quality lessons.

Fourthly, taking into account the positive feedback of the participants of the educational process, there is a future for UDS.

Fifthly, in the future, the activities of the UDS may be useful from the point of view of inclusive education. UDS will become promising and justified for both children and teachers, as it will enable the participants of the educational process in the most convenient format to conduct classes using various LMS Moodle resources and tools, not only in the Lviv region, but also throughout Ukraine.