Distance technologies in action: E-learning in exile (the experience of Donetsk National University, Ukraine)

Some aspects of applying of distance technologies in higher educational institutions in Ukraine are shown in the paper. The main goal of the paper is to describe own experience of the distance learning in Donetsk National University.

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Abstracts:

This academic year due to the complex socio-political situation in the east of the country and continuing armed conflict Donetsk National University has to evacuate to other city – Vinnitsya. There was no doubt that in these new conditions an effective teaching just would be impossible. If it were not for distance learning technologies are provided.

Distance learning has become a staple in education during the past few years. In Ukraine, distance learning is regulated by the "Regulations on distance learning", approved in April, 2013. According to it, distance learning can be understood as "a set of educational services provided to the public at large with using specialized educational environment based on the means of data transmission at a distance". Some aspects of applying of distance technologies in higher educational institutions in Ukraine are shown in the paper.

The main goal of the paper is to describe own experience of the distance learning in Donetsk National University. Exactly because of independence of e-leaning on the distance between the teacher and students training in the University is going on without trouble.

So, from October 2014 university teachers have restored, designed and implemented many distance learning courses on the platform Moodle (https://moodle.donnu.edu.ua/) for the organization of teaching in all 10 Departments of the university. Training of teachers was assigned to The Center for Continuing Education. Distance learning courses are developed based on the experience of world leading universities and can be used for teaching persons with physical disabilities. More detail of our experience will be covered in the paper.

Keywords: distance technologies in education, higher education, e-learning, Moodle, e-learning in Ukraine.

Donetsk National University is one of the leading higher education institutions of Ukraine, a preeminent educational and scientific complex with the highest level of accreditation. Donetsk National University brings together scientists, including academicians and corresponding members of the National Academy of Sciences of Ukraine and branch academies, laureates of State Prize of Ukraine, honored workers of Science and Technology, honored workers of high school of Ukraine. The University numbers more than fourteen thousand students and nearly a thousand of teachers. This academic year due to the complex socio-political situation in the east of the country and continuing armed conflict in Donetsk, in order to preserve the life and health of Ukrainian citizens

Ministry of Education and Science of Ukraine decided to evacuate Donetsk National University to Vinnytsya (under the decree of the Ministry of Education and Science of Ukraine "Organization of the educational process of Donetsk National University in Vinnitsya" № 1084 from 30th of September, 2014). There was no doubt that in these new conditions an effective teaching just would be really impossible. If it were not for distance learning technologies provided. The distance learning in Donetsk National University was the only practical delivery format to train our students in our educational environment because distance education is that educational mode whereby a student can learn "at a distance". Instructor and students interact at a distance without having to be physically present in the same location.

Distance learning has become a staple in education during the past few years. Educator J.S. Daniel (1996) describes distance education from a strategic viewpoint:

> Distance education is the offering of educational programmes designed to facilitate a learning strategy which does not depend on day-to-day contact teaching but makes best use of the potential of students to study on their own. It provides interactive study material and decentralised learning facilities where students can seek academic and other forms of educational assistance when they need it [1].

In Ukraine, distance learning is regulated by the "Regulations on distance learning", approved in April, 2013 under the decree of the Ministry of Education and Science of Ukraine № 466. According to this document, distance learning can be understood as "a set of educational services provided to the public at large with using specialized educational environment based on the means of data transmission at a distance" [3].

> The main objective of the distance learning in Ukraine is to provide the exercising of constitutional rights of Ukrainian citizens to various educational opportunities for professional development according to their abilities, regardless of their gender, race, nationality, social and economic status, type and nature of employment, philosophical beliefs, membership of political parties, creed, health and place of residence and living [3].

The efficiency of e-learning organization in higher educational institutions in Ukraine is controlled by Ministry of Education and Science under the decree "Requirements for universities and postgraduate educational institutions, scientific and research institutions providing educational services for distance learning with training and professional development for accredited specialties" № 1518 from 30th of October, 2013.

Let's consider these requirements for higher educational institutions in detail. The minimal requirements concern organizational, personnel, scientific and methodical, material and technical bases, information and hardware support [4]. Organizational

support for the implementation of distance learning should be made of following documents:

- The educational license for training students of defined specialties by distance technologies;
- The resolution of University Academic Council on the implementation of distance learning for training students of defined specialties or some advanced training programs;
- The Regulations on distance learning in the University designed of special working team of the University and approved by the University Academic Council.

Additionally, the University must create a special Department with the appropriate staff, technical and financial support for implementing and maintaining of distance technologies in learning process. Moreover, there must be a Methodological Commission in the University. The main objectives of this Commission are: to establish the compliance of discipline web resources with the requirements for the educational process and to make methodological recommendations for application of web resources in students training. The staff of the Department and Methodological Commission should be provided with educators and scientists, who carry out research in issues of applying of distance learning technologies.

Scientific and methodological support of distance learning should be based on:

- Approved curriculum for training students of defined specialties by distance technologies;
- List of classroom studies and tasks for students academic achievement control conducting face to face;
- Criteria and testing tools of the quality of distance learning;
- Methodological guidance on the designing and applying of distance learning technologies.

Technical and hardware support of distance education require specialized facilities to ensure organizational and technological maintenance for distance learning, computer software, powerful servers with around-the-clock access, local area network (LAN) with Internet access and anytime access to digital library of the University.

Information support includes the implementation of up-to-date pedagogical technologies in educational process, the administration of the University website content and the University distance courses. In addition, distance courses and services must provide synchronous and asynchronous communication, which can be represented by:

- manual of working with web resources for teachers and students;
- e-lectures (text, drawings, spreadsheets, multimedia presentations, video and audio recordings, etc.);
- test tasks for all types of control (self-control, current and final control);
- practical tasks and virtual laboratory work with guidelines for their implementation;
- bibliography and links to digital libraries and resources.

In spite of complexity of these requirements today many Ukrainian universities actively implement the distance learning technologies, among them: Kyiv National Technical University, Kharkiv National Technical University, Donetsk National University, Ternopil National Technical University, National University of Water Resources and Environmental Sciences (Rivne), Lviv National Technical University, Khmelnitsky National University, Dnepropetrovsk National University, Sumy State University, International University of Finance (Kyiv), Kyiv National University of Technology and Design, Ukrainian Academy of Public Administration and others.

Monitoring of distance technologies applying in some Ukrainian higher educational institution was carried out by authors. Some information concerning the implementation of distance education in these institutions (suggested specialties and graduate degrees) is presented in Table 1.

Table 1

Higher educational institution	Specialty	Graduate degree
Kharkiv National Technical University	"Ecology and Environmental Protection", "Economy Cybernetics", "International Management", "Automated Systems Software", "Management", "Accounting", "Computer systems and Networks"	Bachelor's Master's, courses for university entrants
Donetsk National University	All accredited specialties at: Faculty of Philology, Faculty of Economics, Faculty of Biology, Faculty of History, Faculty of Chemistry, Faculty of Foreign Languages, Faculty of Physics and Technology, Faculty of Law Faculty of Mathematics and IT.	Bachelor's Master's, Postgraduate, courses for university entrants
Ternopil National	"Computer Science", "Computer	Bachelor's

Higher educational institution	Specialty	Graduate degree
Technical University	Engineering", "Automation and Computer-Integrated Technologies", "Processing Equipment and Food Production", "Process Control", "Computer-integrated Production Processes"	Postgraduate
Khmelnitsky National University	"Mechanical Engineering", "Electronics", "Radio and Electronics", "Computer Science", "Applied Mathematics", "Economy and Entrepreneurship", "Light Industry", "Pedagogy"	Bachelor's Postgraduate
Sumy State University	"Economics of Entrepreneurship", "Finance and Credit", "Management", "Marketing", "Computer Science", "Informatics", "Electronic Devices and Systems", "Electronics and Electrotechnology", "Law", "Engineering"	Bachelor's Master's, courses for university entrants
Kyiv National University of Technology and Design	"Management", "Economics of Entrepreneurship", "Accounting", "Marketing", "Finance and Credit"	Bachelor's
Higher educational institution	**Specialty**	**Graduate degree**
National University of Water Resources and Environmental Sciences (Rivne)	"Business Economics", "Human Recourses Management and Labour Economics", "Finance and Credit" "Accounting", "Management", "Ecology", "Environmental Protection and Sustainable Usage of Natural Resources", "Automation and Computer-Integrated Technologies", "Mining', "Machine Building", "Power System", "Hydropower construction", "Hydrotechology (water resources)", "Transport Technologies", "Road Transport", "Geodesy", "Cartography and Land Management", "Agriculture Agronomy", "Water Bioresources and Aquaculture", "Labour Protection"	Bachelor's, courses for university entrants
International University of Finance (Kyiv)	"Business Finance", "Banking Technologies and Processes", "International Management",	Bachelor's Master's

	"Innovation Management", "Accounting", "Business Economics"	

As you can see at the **Table 1** the most popular specialties in distance education in Ukraine are economical and IT ones. As mentioned earlier, organization of distance learning in these higher educational institutions satisfies all requirements of Ministry of Education and Science of Ukraine.

Distance education in Donetsk National University has been implemented since 2008. In the University distance learning is coordinated by the Department of Distance Learning and WEB-Technologies in the Center of Continuing Education. Center of Continuing Education also consists of: Department of further specialization on the basis of higher education; Department of psychological education and consulting services; training courses for university entrants and schoolchildren; language courses; professional courses for adults. In 2014 Center of Continuing Education of Donetsk National University became a member of Global Universities In Distance Education (GUIDE) Association. GUIDE Association was founded in 2005 by Marconi University (Rome, Italy) with the aim to develop and support international cooperation and open and distance learning worldwide [2]**.**

Support for distance learning of teachers and students is provided by the Department of Distance Learning and WEB-Technologies staff.

The main aims of the Department of Distance Learning and WEB-Technologies are:
- participation in The University education space formation;
- implementation of innovative educational computer and telecommunication methodologies;
- designing of multimedia technologies for educational resources production (distant educational courses development and their expertise and certification).

In this academic year Donetsk National University teachers have restored, designed and implemented more than fifty distance learning courses on the platform Moodle (Fig. 1) for the organization of training students. The link of the Home page of University distance courses is https://moodle.donnu.edu.ua/ (Fig. 1).
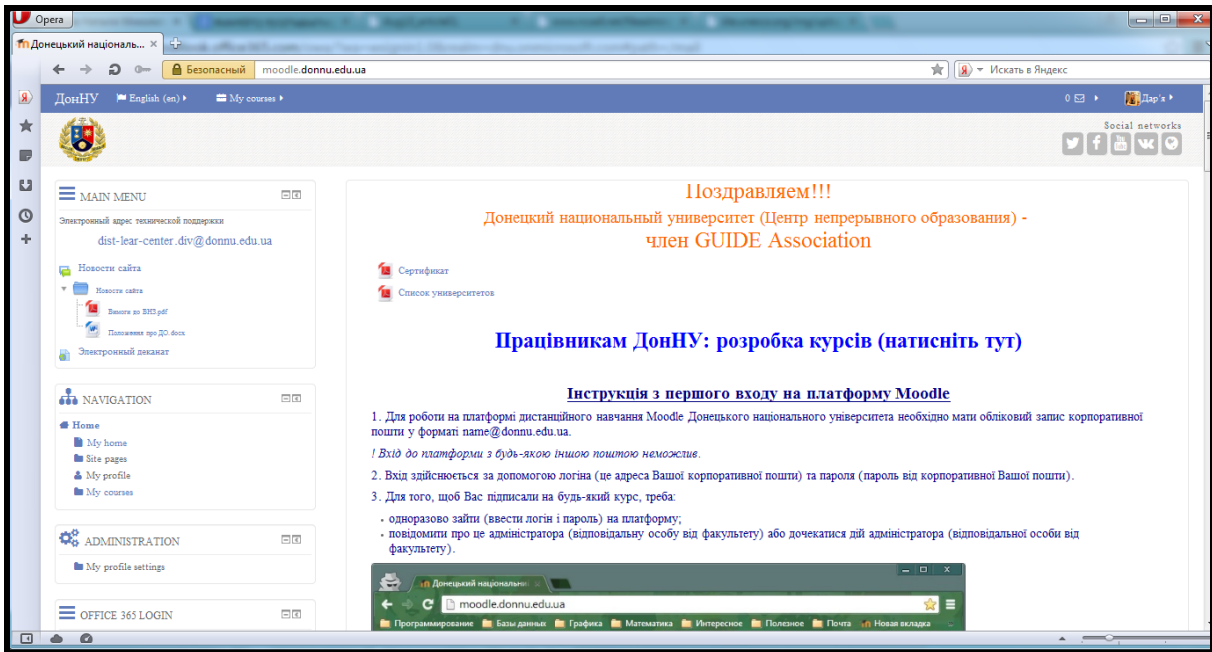
Figure 1 Home page of university distance courses

We choose this open source learning platform because of its advantages:

- ease of use – for system admins, application developers, course designers, faculty, and students;
- a rich set of resource and activity creation tools;
- availability of 3rd party modules to extend the student experience;
- cohesiveness of the design and implementation.

Moreover, Moodle is an excellent platform for training courses, including the opportunity to create interactive tasks, checking tasks performed and communication with the help of forum.

Each course can be designed to include resources and activities. Activities available in Moodle correspond to the modules included in the core Moodle code and each course can use any combination of activities and resources. Typical activities include: assignment, quizzes, questionnaire, forum, chat, messages, RSS feeds, Wiki or SCORM content. Typical resources include: files, links or html pages.

This open source learning platform allows us to make a training program as interactive and independent as possible. Each participant of the course is assigned a role (administrator, tutor, student, visitor), and each has access to a number of resources. One should note here that Moodle interface is also user-friendly. Every authorized user has access to calendar, messages, private files, forum posts, discussions, etc (Fig. 2).

Course categories at moodle.donnu.edu.ua consist of distance courses for different Departments: Faculty of Math and IT, Faculty of Biology, Faculty of Economics, Faculty of Philology, Faculty of Chemistry, Faculty of Physics and Technology, Department of Postgraduate Studies, Department of Philosophy, Training courses for university entrants, Courses for distance learning of tutors, etc (Fig 3).
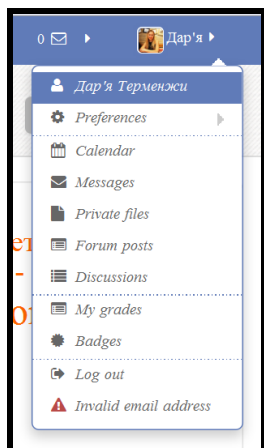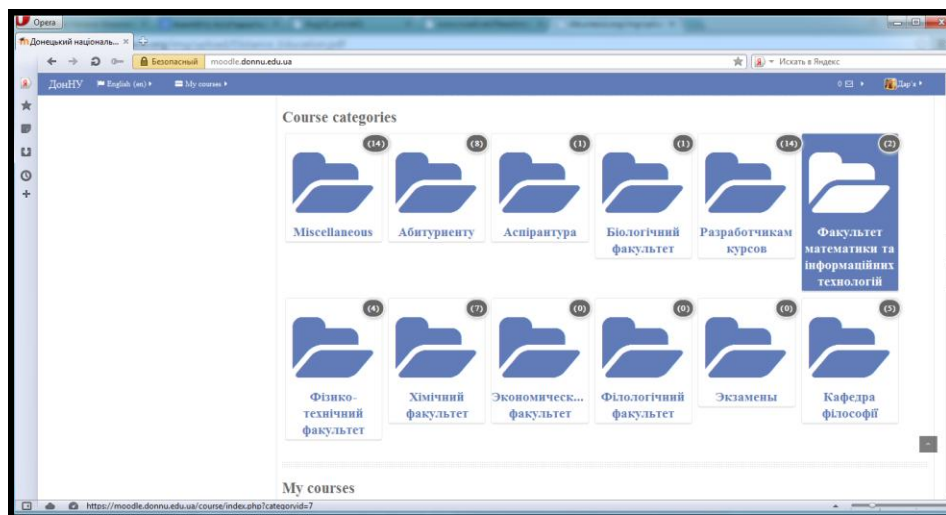
| **Figure 2** | **Figure 3 Course categories at** |
| | **moodle.donnu.edu.ua** |

Another important feature of distance learning is that it can be organized in two modes: synchronous or asynchronous.

Asynchronous learning is one way that a student learns in an e-learning environment. This mode is backed up by collaborative tools like e-mails, blogs, or discussion boards. So, while the students take their own course and pace through the learning material, the option for interaction is always open – within the learner group as well as with instructors. The interaction or any contribution is refined, for it is not spontaneous but thought out.

Synchronous learning, on the other hand, is implemented through 'participation in the social world'. With help of social media such as chat or web conferences the learners, with or without an instructor comes together and learns. This is closer to traditional classroom teaching, the premise behind this mode being that learning is a social phenomenon. Some forms of asynchronous and synchronous learning might be new for our students and teachers. So, they could prepare to these types of activity at Center of Continuing Education.

The Department of Distance Learning and WEB-Technologies staff provides scheduled orientations and an online tips for distance learning students to familiarize them with the University educational resources, interactive modules, corporative email. Additionally, these students are provided ongoing technical assistance through workshops and the help tips for e-learning. All new online students are required to take an assessment that tests computer skills on downloading and opening a file, inserting text to a file, saving a file to a directory or storage, sending email, and attaching a file to that email. If students are not skilled in these areas, advisors recommend them free introductory computer course. Moreover, students get a short text guide on how to log in and use the online learning platform, Moodle. They can find the basic instructions for how to change their password, choose a language, send an e-mail, and upload a picture etc.

As mentioned earlier, training of the University teachers was assigned to Department of Distance Learning and WEB-Technologies. Educators of the Department offer an intensive course "Designing of distance courses in the Moodle online learning platform" for all teacher of Donetsk National University in blended form (combining of "face to face" and online studies). Since 2014 year more than hundred of teachers of the University have graduated this training course and designed own distance courses for students. Furthermore, one should not forget that distance learning courses are developed based on the experience of world leading universities and can be used for teaching persons with physical disabilities.

Let's consider designed distance course in detail. For instance, course "Algebra and Geometry" for pre-service mathematician training at Faculty of Mathematics and IT. It was built on the basis of requirements for distance courses and includes (Fig. 4): information about tutors of this course with a link to personal website of the lecturer; schedule; curriculum; e-lectures with links for downloading; slide lectures (programmed in Notebook for SmartBoard); recommended books with links for downloading; online quizzes; online consultation, forum and chat modules; topics of creative tasks and library of scientific projects (the best works of previous students). The positive aspect of course "Algebra and Geometry" is a possibility of online consultation for every students. Consultation is an integral part of the learning process.
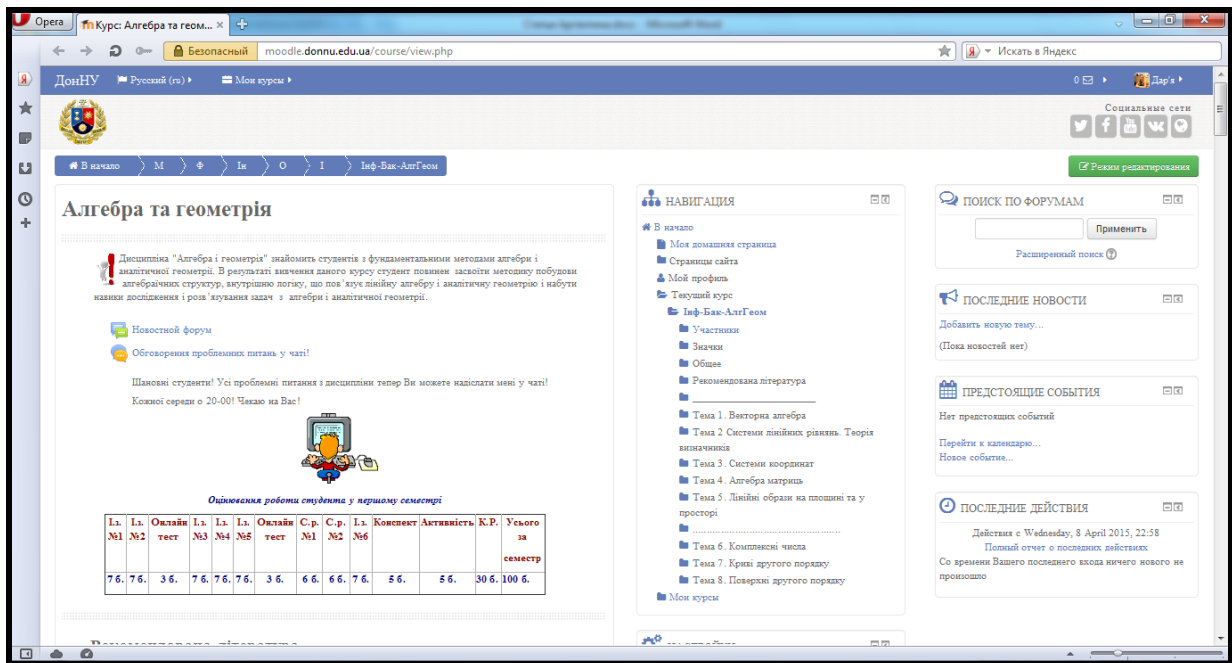
Figure 4 Course "Algebra and Geometry" at moodle.donnu.edu.ua

The staff of Center of Continuing Education has also developed and implemented distance learning courses for university entrants (Mathematics, Ukrainian Language and Literature, History of Ukraine).

Donetsk National University always tries to be a leader in the field of modernization of the national educational system in accordance with modern standards and the needs of integration into global cultural space. The University continues its work exactly in the direction of implementing distance technologies.

To draw the conclusion, one can say that the modern university cannot take contemplative stand in the implementing of distance technologies in education; we need to actively develop new ideology and practice of distance education, introduce new models of education for responding to the various needs of the modern informational society.

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[Subir](#)