MODERN REQUIREMENTS FOR COMPETENCIES OF SCIENTIFIC AND PEDAGOGICAL EMPLOYEES OF HIGHER EDUCATION INSTITUTIONS

**Abstract.** The current state of the problem of informatization of education in Ukraine has been analyzed. It is shown that information technologies largely determine the nature and direction of higher education, and their active implementation in the educational process contributes to effective training of future competitive professionals. The main aspects of solving the problem of informatization are considered: computerization of educational institutions and acquisition of information and communication competencies by research and teaching staff of universities.

**Keywords:** information and communication competencies, research and teaching staff, information and educational environment, distance learning technologies, higher education institution.

Higher education in Ukraine is undergoing radical changes and reforms in search of new effective ideas, values and long-term priorities. At the same time, the global changes in the life of all mankind, which have taken place in recent years due
to the coronavirus pandemic, have a significant impact on the development of science and education. According to the Law of Ukraine "On the National Informatization Program" and the objectives of the Bologna Process, the main direction of development of the modern higher education system in Ukraine is creation of a global international educational environment, the main advantage of which is presentation of educational material in a didactically unified and formalized way and creating conditions for using the content anywhere and anytime, regardless of the form of student’s education [1-3].

Under these conditions, new, much higher and more complex requirements are put forward to research and teaching staff of higher education institutions. The need to use distance learning technologies in their work requires them to have appropriate knowledge and skills, which include, first of all, information and communication competencies. Under the information and communication competencies one understands the competencies of the teacher in using information and communication technologies (ICT) in the educational process [1].

Mastering ICT competencies affects the level of professional competence of both the teacher and the students he teaches. The introduction of information and communication technologies into the educational process is a prerequisite for the student to have free access to the global information educational environment, at least to the educational environment of the higher education institution or country. The use of resources and services available in the information and educational environment of the university allows students to get education as conveniently and efficiently – extraterritorially, synchronously and asynchronously in time, flexibly choose curricula, terms and pace of study.

The task of implementing ICT in higher education is quite complex and multilevel. Until recently, informatization of all spheres of human life and informatization of education, in particular, were considered by government agencies and professional communities as a purely technical task. The goal was, first of all, to provide educational institutions with a sufficient number of computers, reliable and stable connection to the Internet, teaching in schools and higher education institutions such disciplines as "Computer Science", "European
Unfortunately, Ukraine is still at one of the last places in the world in terms of the number of computers in secondary and higher education institutions and in terms of the level of ensuring a reliable Internet connection.

However, at the current stage of ICT implementation in education, it is clear that educators face challenges of a much higher level.

Informatization of education requires not only sufficient computerization of the educational process, but also understanding the policy in the field of e-learning by research and teaching staff, understanding how to plan the learning process using ICT, the ability to use innovative pedagogical technologies of distance learning and the ability to create new e-learning resources.

One kind of such e-learning resources is e-learning courses (ELCs), or distance learning courses. An e-learning course is a set of e-learning materials created for the organization of individual and group learning using distance technologies based on Internet technologies, in accordance with the schedule of the educational process of a higher education institution [2]. E-learning courses are placed on the learning portal in a distance learning system organized on the basis of learning resources management. An example of such an information and educational portal for distance learning is the Moodle environment (Modular Object-Oriented Dynamic Learning Environment). In Moodle, there are various opportunities for presenting informative content, as well as for testing and tracking student performance; there is also support for their registration with secure authentication.

The Moodle learning environment has a wide range of functionality specific to e-learning platforms, course management systems (CMS), learning management systems (LMS) or virtual learning environments (VLE). Moodle allows teachers to create e-courses for online learning. It can be used both for training of school pupils, students, and for advanced training, business training. Typical Moodle functionality includes: informational and educational resources (web pages, files, folders, video content, images, links, databases, glossary); means of communication (discussion forums, chats, messenger, calendar of events, news and announcements of events (for different levels: site, course, academic group); means of knowledge assessment
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(tests, questionnaires, possibilities of submitting works); capabilities for cooperation (lectures, seminars).

The educational environment provides ample opportunities for both students and teachers. Students have access to educational materials (lecture texts, assignments for practical, laboratory and independent work; additional materials – textbooks, reference books, glossaries, manuals, methodical guidelines, access to communication and testing tools; can use tools for group work (such as Wiki, forum, chat, seminar, webinar), have possibilities to view their progress in the distance learning course, to check the results of tests, to communicate with the teacher through personal messages, forum, chat, to upload files with completed tasks, to use reminders, the possibility of preparing for exams with access to the bank of distance learning questions.

In the university educational environment, teachers are given the opportunity of using tools to develop author's distance learning courses; deployment of educational materials (lecture texts, tasks for practical, laboratory and independent work; additional materials – textbooks, reference books, manuals, methodical guidelines, as well as video, audio and presentation materials in various formats and through additional plugins); adding various elements to the course; rapid modification of educational materials, creating various types of tests, automatic test generation, automation of the process of knowledge assessment, generating reports on the students’ progress and test completion, etc.

It is assumed that students master the educational material in the discipline, for which an electronic training course has been developed, under the guidance of a teacher. In the process of approbation of the course, i. e. in the process of its use by students, the teacher can make changes to the structure and content of the ELC in order to improve it.

The use of distance learning technologies requires a teacher of higher education to be constantly ready to carry out pedagogical activities in new, rapidly changing conditions, and, consequently, constant self-development to acquire certain (and not only professional) competencies, in particular, information and communication competencies. Taking into account the current trends in the development of
education, the teacher is faced with the issue of continuous, uninterrupted training in the application of innovative educational technologies, in particular, studying the basics of development of e-learning courses.

The main characteristics of an e-learning course are the structure of methodical materials; compliance with the main structural elements of the process of studying the course: lectures, practical, seminar, laboratory classes, independent work, final test, exam; a clear schedule for students to complete the curriculum; an established system of interaction of the teacher and the student (and also students among themselves) by means of resources of an electronic educational course and remote technologies during the whole time of studying of an educational course; high-quality training materials allowing to acquire the competencies declared in the curriculum; availability of multimedia educational materials; a system of evaluation of results of students’ educational activities, which includes forms and criteria of evaluation of all types of educational activities; a system of assessment and self-assessment of all types of educational activities of students.

The main goal of a higher education institution is to prepare a highly professional and creative specialist who will be able to make independent decisions and at the same time be able to work in a team, strive for self-development and implement new ideas, quickly find the necessary information and master modern information technologies. The use of resources and services of the information and educational environment of the university allows students to obtain education as conveniently and efficiently as possible, significantly expands access to educational and scientific information resources of the country and the world. It is important to remember that the main responsibility for achieving the primary goal of higher education has always lain and will lie with teachers; the quality of educational services provided by teachers will depend on the quality of activities of each research and teaching employee, the level of his professional, information and communication competencies.

References:
1. Morze N. V., Glazunova O. G. Quality criteria for e-learning courses developed on the basis


