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Pedagogical Problems of Organization of Laboratory and Practical Training in Universities

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Abstract: It has created ample opportunities for students to master many fundamental concepts relatively easily, conveniently, and robustly. In this regard, the creation of methodological guidelines, methodological manuals for the organization of laboratory and practical training in higher education institutions and their use in the educational process are important factors.

Key words: Information base of the educational process, interactive communication, demonstration of visual materials, interactive presentation of tutor-training courses, e-learning system.

As the practice of using information and communication technologies in education is expanding, research in this area is becoming increasingly important. In our country, as well as in the developed countries of the world, this direction is considered as a priority in the process of education reform. Informatization of education requires the implementation of the following processes in each educational institution:

1. Informing the teaching and learning process.
2. Informatization of the management of the educational institution.
3. Informing the environment of the educational institution.

Widespread introduction of modern information technologies in the education system allows students to acquire professional knowledge; deep mastery of the field of science by modeling the studied phenomena and processes; expansion of the student's field of independent activity due to the different organization of educational activities; to individualize and differentiate the learning process based on the introduction of interactive communication capabilities; formation of information culture in it as a member of the information society; the presentation of the studied processes and events through computer technology is important as it leads to increased interest and activity in the basics of science in students[1].

Informatization of the educational process in higher education leads to the improvement of the content and essence of education. In a modern information technology environment, didactics offers a wide range of educational activities aimed at the independent acquisition of knowledge through the active use of modern information technology. At the same time, didactics develops thinking, the level of abilities and capabilities of the individual, aesthetic taste, information culture, independent acquisition of knowledge, skills and competencies in educational and information activities [2].

The introduction of modern information technology in the educational process of higher education institutions provides the development of students' thinking, optimal decision-making skills, communication skills, aesthetic education, professional skills and abilities, information culture.

Modern information technologies accelerate all stages of the educational process. At the same time, based on the use of information technology, there is an increase in the quality and efficiency of the educational process, the intensification of students' learning activities, the deepening of interdisciplinary connections.

Individualization and differentiation of the learning process, control of learning activities through feedback, self-monitoring, organization of exercises and independent training in the process of mastering the material, which allows to achieve efficiency through the introduction of information technology and are important from a didactic point of view computer visualization of educational information, modeling of studied events and processes, computer laboratory work, creation and use of information database, equipping students with strategies for learning the material, developing thinking, developing optimal decision-making skills, forming information culture in students is achieved [3].

Modern information technologies allow to solve didactic problems such as teaching events and processes in the micro and macro world, complex devices and biological systems based on the use of computer graphics and modeling, presenting physical, chemical and biological processes occurring at very high or very low speeds.

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The widespread introduction of modern information and communication technologies in education leads to the informatization of science, the intellectualization of educational activities, the deepening of integration processes, the improvement of the infrastructure of the education system and its management mechanisms.

The process of informatization of education and the use of modern information technologies leads not only to changes in organizational forms and methods of teaching, but also to the formation of new methods of teaching. Informatization of disciplines leads to the improvement of educational activities, the intensification of the learning process, the expansion, deepening and integration of disciplines. Thus, the process of informatization of education is the basis for changing the content and volume of teaching materials, redevelopment of curricula (courses), integration of individual topics or disciplines. This leads to a change in the content and structure of academic disciplines, and consequently to a change in the content and structure of education[2].

The widespread use of distance learning as an important part of the open education system in the world, as well as the use of modern information technologies and the Internet in education is one of the factors in improving its quality. Modern information and communication technologies are widely introduced in the education system, including higher education[4].

Effective organization of educational processes in higher education institutions on the basis of modern information technologies; distribution of responsibilities among teachers; improving the organization of the educational process and monitoring the effectiveness of pedagogical activities.

Pedagogical activity based on modern technologies facilitates the complex process of creating courses in connection with the rapid development of the technological basis of education, the formation of special skills in the creation of courses, the need to control the quality of distance learning courses and the quality of teaching materials. ensures the transfer of the weight of the learning process from teacher to student, the increase of student personal participation in the organization of the learning process, the formation of feedback from each teacher to each student through the use of modern communication technologies[3].

In our opinion, the reasons for the negative impact of the widespread use of modern information technology in education are the lack of readiness of pedagogical teams to informatize education, lack of understanding of the possibilities of computer training programs, methodological developments for their application, lack of IT specialists in education.

An important aspect of solving these problems is the attitude of teachers to the informatization of education. It should be noted that the role of the educator in the informatization environment will increase.

The introduction of modern technologies leads the teacher in the learning process not by limiting the scope of activities by educational tools, but by changing his tasks, role, improvement of pedagogical activity. Now from a teacher to a course designer to a course creator; be a consultant on teaching methods; tutor - a specialist in interactive presentation of training courses; is required to be an expert in methods of monitoring learning outcomes.

The widespread introduction of modern information and communication technologies in pedagogical processes creates new opportunities for the organization of distance learning. Distance learning is provided to its users mainly in the form of distance learning courses.

The creators of the mentioned courses are programmers (course designers) and technology specialists.

Modern computer and information and communication technology universities ensure the development of educational content. These technologies are a tool for improving the content of education, linking the components of educational content, using different forms of information, presenting courses in the form of a set of lessons, creating lessons as a virtual mobile system, ensuring the sequence of teaching materials, introducing a differentiated approach serves as.

One of the most effective ways to choose technology is a multimedia approach. When choosing technologies for the learning process, it is not the new technology itself that is important in the learning process, but the importance of using it to achieve the goals of education. It should be noted that the choice of technology depends on the individual characteristics of students, the specifics of the field of study, the content of assignments and exercises.

Thus, the creation of a theoretical basis for the application of advanced advances in science and technology in the education system creates opportunities for scientific practice in the field of information technology for pedagogical practice, the development of educational processes, the achievement of new quality indicators.

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