

Methodology of Organizing Drawing Geometry Classes Through Software Training Tools

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Annotation: In today's information age and pandemic, it is important to form a distance learning system in higher education institutions. In the education system of many countries, the learning process uses a form of distance learning based on modern information and communication technologies to train quality personnel. The experience of the education system shows that the possibilities for a radical improvement in the quality of personnel through the transformation of the Internet and information and communication technologies into the learning process as a means of acquiring, storing, transferring new knowledge and making practical decisions are expanding.

In this regard, the remote organization of classes in engineering graphics using technical means is relevant today. In particular, drawing and descriptive geometry require students to have an active spatial imagination. Because projection is an invisible complex process that cannot be explained orally. In this regard, we will focus on the use of problem learning opportunities in the process of teaching drawing in higher education.

Keywords: engineering graphics, distance learning, information and communication technologies, self-study, training, educational process.

The improvement of students' graphic skills is determined by how quickly and successfully the reconstruction of education is carried out on the basis of advanced ideas of recent years. In secondary schools, work on new programs is being organized, and specialists are working on the creation of a new generation of textbooks. Now one of the main issues is to further improve teaching methods. The need for research in this area is explained, firstly, by the growing demand for modern teaching, scientific and methodological training of teachers, and secondly, by the growing demand for didactic assessment of methodological innovations in recent years. possible.

At present, along with the creation of a new program of drawing, scientific and methodological work is being carried out to find ways to develop the intellectual activity of students.

Reforms are being carried out in our country to establish a continuous system of education. The role of distance learning is very important. Distance learning is a process of distance and interactive communication of listeners and teachers using the purpose, content, methods, teaching aids and Internet technologies of the educational process.

Distance education is a form of education based on the complex distance learning of all disciplines in the system of training specialists in a particular field, but without a conditionally established place and time criteria for the learning process within the complex. In order to fully and correctly understand the essence of this definition, it is necessary to bring it together with the definition of distance learning mentioned above.

Distance learning is the most important and increasingly popular form of modern education. Distance learning is a new modern form of teaching that develops the student's ability to think independently, assess the situation, draw conclusions. Teaches independent learning, research, thinking.

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The difference between the distance education system and the traditional method of education is that it has great potential. In such an education system, it is possible to increase the efficiency of the learning process, regardless of where the listener is.

The advantages of the distance education system can be shown below.

- In the traditional teaching method, the student reads only the given material. In distance education, the student has the opportunity to search for and process the necessary information from the database, to gain experience and to share their experiences with other students through electronic networks;
- Distance learning provides a wide range of opportunities for millions of students, especially those who are inseparable from production;
- Statistics show that distance learning is just as effective as traditional learning.

The advantage of distance learning students is that they are provided with the best and highest quality didactic materials as well as potential speakers. Using this method, students can “travel the world” via the internet.

In order to improve the skills and retrain teachers and researchers through the distance education system, there must be a strong link between elements such as teaching materials, the system of control over the acquired knowledge and organizational forms of work.

E-textbooks and manuals should provide high activity in distance learning. They should serve as an education system for the audience. Courses designed for each subject should have three (minimum) components: educational, practical, and control.

Teachers involved in distance learning are required to acquire certain knowledge, skills and abilities. The requirements for teacher knowledge, skills and abilities can be divided into four parts:

1. General knowledge and skills of the teacher in the field of new information technologies in education:

- know the principles of operation of personal computers and their external devices;
- mastering modern software;
- mastering the basic principles and software of the Internet;
- Knowledge of methodological materials and scientific literature on the use of new information technologies in education;
- be able to apply the information obtained to the issues being addressed.

2. Special knowledge and skills of teachers in the field of Internet technologies:

- knowledge of the basic forms and general principles of operation of telecommunication systems;
- to understand the features of users' access to the Internet at different levels;
- know the features of organizing and conducting teleconferences;
- knowledge of telecommunication behavior (etiquette);
- be able to use various means of telecommunications to exchange information with other users;
- have the ability to "navigate" information in the network;
- ability to work with information materials of the network;
- to understand the features of the use of software for the creation of distance learning courses;
- ability to work with e-mail;
- ability to communicate with users through the network;
- ability to work with modern hypertext and hypermedia systems;
- be able to distinguish between Internet information materials suitable for educational purposes;
- to be able to prepare information for transmission from the network using various applications and necessary utilities.

3. General knowledge and skills of the teacher in the field of pedagogy and psychology:



- to know the individual methods of learning activities of students in distance learning;
 - to know the factors determining the activity of students in distance learning;
 - to know the features of the process of acquiring knowledge in distance learning;
 - To know the features of the organization of independent work of students in the information environment of the Internet;
 - have ways to communicate with participants of distance learning;
 - The organization and conduct of psychological and pedagogical tests of students;
 - to create a personal psychological and pedagogical portrait of the student;
 - to be able to provide psychological support to students at an early stage of educational activity;
 - to be able to form small study groups according to the principle of psychological compatibility of students;
 - to conduct psychological and pedagogical diagnosis of the virtual study group;
 - to create a good psychological environment within the virtual learning group;
 - Prevention of conflict situations and knowledge of them yesterday.
4. General knowledge and skills of the teacher in the field of new information technologies:
- knowledge of modern methods of person-centered - the method of collaborative learning, the method of projects, research methods and other methods;
 - have individual, group and frontal methods of education;
 - be able to adapt the existing form of full-time education to the Internet;
 - be able to combine full-time and part-time forms of education;
 - be able to combine individual, group and frontal forms of education when working with distance students;
 - organization and implementation of telecommunication projects;
 - To be able to organize and conduct educational teleconferences as a moderator;
 - organization and monitoring of students' learning activities;
 - to be able to organize a system of effective control and testing of students' knowledge.

One of the most effective and promising methods of higher and secondary special education through distance learning is the introduction of a system of advanced training and retraining of personnel of professional institutions, less expensive than the traditional system of education.

In addition to theoretical and practical training, independent study should not be neglected. Because the student not only strengthens the knowledge acquired in theoretical and practical classes in independent learning, but also independently seeks, creates, innovates, relying on student knowledge. This in turn encourages the student to think creatively, to be inventive and most importantly to think independently.

When organizing independent study, it is necessary to pay attention to the following:

1. The content of independent study should not exceed the number of hours allocated;
2. The content of independent education should be within the scope of the subject;
3. Reflection of topics of independent education in theoretical and practical lessons;
4. Availability of graphic tasks aimed at independent and creative thinking of students;
5. Their level of complexity is within the scope of student knowledge;

Assessment criteria in independent study are distributed to students at the beginning of the academic year, along with methodological materials.

Students' mastery of independent work is regularly monitored. The educational and methodological base for the effective organization of independent education should be created.

1. Model and working programs expressing the form, content and scope of independent education;



2. Methodical instructions and recommendations necessary for independent work.

3. Organizational forms, tasks and options of independent study within the time budget allocated for independent work;

The objectives of independent study in the course of engineering graphics include:

1. Focusing the content of education on educating students in the spirit of creativity;

2. Ensuring the integration of theoretical, practical, independent learning and production content;

3. Study, generalization and introduction of information, innovative technologies, achievements of science and technology in the educational process;

4. Ensuring team and individual work of students;

5. Development of graphic tasks requiring technical creativity and their introduction into the educational process.

In the effective organization of independent education, the pedagogical skills of teachers must be sufficient.

In particular, it is important that they have a high level of knowledge, be able to use information technology in the classroom, be able to construct problems, and be able to analyze and innovate, and finally be a ransom for their profession.

In short, education independent of engineering graphics, if organized on the basis of the above requirements and criteria, will undoubtedly serve to develop in students such qualities as ingenuity, discovery, rationalization, creative and independent thinking and creativity, and most importantly in educating a harmoniously developed generation.

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