CURRENT RESEARCH JOURNAL OF PEDAGOGICS
(ISSN –2767-3278)
VOLUME 05 ISSUE 03 Pages: 44-51
SJIF IMPACT FACTOR (2022: 6. 013) (2023: 7. 266) (2024: 8.125)
OCLC – 1242041055
Publisher: Master Journals

Journal Website: https://masterjournals.com/index.php/crjp

Research Article

DIDACTIC PROVISION OF DISTANCE LEARNING IN THE SUBJECT DESCRIPTIVE GEOMETRY

Submission Date: March 19, 2024, **Accepted Date:** March 24, 2024,
Published Date: March 29, 2024
Crossref doi: https://doi.org/10.37547/pedagogics-crjp-05-03-06

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ABSTRACT

This article highlights the didactic significance of distance learning in the process of teaching descriptive geometry in higher educational institutions. At the same time, the concept of distance learning, definitions, types of distance learning, and recommendations for distance learning are given.

KEYWORDS

Descriptive geometry, distance learning, didactic software, computer, AutoCAD software, animation, point, straight line, segment, general position, particular position.

INTRODUCTION

Distance learning is aimed at providing students with the necessary knowledge, skills and abilities remotely, using information and communication technologies and the worldwide Internet information network, in accordance with curricula and curricula.

In distance learning, the student and the teacher are in constant communication with the help of specially created training courses, forms of control, electronic communication and other Internet technologies, spatially separated from each other. Distance learning based on the use of Internet technologies provides access to the global information educational network, an important category with the principle of integration and interaction performs new functions.

Distance learning provides an opportunity to continuously improve their skills for everyone who wants to get an education. In the process of such training, the student interactively learns independent educational and methodological material, passes

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control, control work under the direct supervision of a teacher, interacts with other students of the "vertical study group" in the group.

Distance learning is a convenient form of education for those who, for certain reasons, do not have the opportunity to study full-time at educational institutions, for example, for health reasons, have the intention to change their specialty or are an elderly person with the intention to improve their qualifications.

Various information and communication technologies are used in distance learning, that is, each technology depends on the purpose and nature of the issue. For example, while learning tools based on the traditional printing method (textbook, textbooks) are based on introducing students to new material, interactive audio and video conferences are designed to interact over a period of time, and e-mail is designed to establish correct and feedback, that is, to send and receive messages. While video lectures, pre-stamped in the tape, allow students to listen and view lectures, the rapid exchange of facsimiles, messages, and assignments over the network allows students to learn through mutual feedback.

Based on the above, we will provide a description and definitions of some terms that are repeatedly mentioned in the educational process at the moment.

Distance learning is a form of education (full-time, part-time, external) with the support of information and communication technologies (computers, telecommunications, multimedia) and scientifically based teaching methods [7].

Distance learning (distant education) is the process of acquiring knowledge and skills using information technology, providing remote exchange of educational information, implementing a management system and conducting the educational process [6].

Distance learning is the remote interaction of a teacher and students, which is carried out with all components related to the educational process (purpose, content, method, organizational form, learning tools, etc.), special means of Internet technologies, etc., and also involves interactivity [7].

Distance learning system is a learning system organized on the basis of distance learning. Like all education systems, the distance learning system has its own structural purpose, content, methods, means and organizational forms.

Why is distance learning necessary? - it's natural to wonder. In response to this question, you can list:

-New educational opportunities (low tuition, lack of dependence on time and place, etc.).

- Limiting the number of students entering educational institutions.

- An increase in the number of people who want to get an education.

- The emergence and development of high-quality information technologies.

- Strengthening international integration.

The conditions and opportunities listed above indicate the need for distance learning.

There are several models and forms of distance learning in the educational system of distance learning, which differ in the following conditions of application:

- geographical conditions (for example, the territory of the country, distance from the center, climate);

- the general level of informatization and computerization of the country;

- the level of development of communications and vehicles;

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- the degree of application of information and communication technologies in the educational process;

- traditions used in education;

- availability and potential of scientific teaching staff for the distance learning system, etc.

Information and communication technologies are used in the educational process (in particular, in the process of distance learning) mainly in two types. The first condition is technical equipment, and the second condition is that it comes with special software.

1. Equipped with technical equipment: computers, network devices, high-speed Internet networks, video conferencing equipment, etc.

2. Software: Includes a set of applications designed for this area, from software that uses existing devices. In recent years, the term e-learning has emerged, a type of e-learning via the Internet or the Internet, which is used in the West to manage the education system.

Here are some of the distance learning models presented in the materials of the analytical study of the UNESCO Institute in 2000 ("Distance Education for the Information Society: Policies, Pedagogy and Professional Development")

The primary (single) model. This model is organized according to its organizational structure solely for the purpose of distance learning and working with "remote" students. The training is carried out in such a way that full-time education is not necessary. All training is conducted remotely. In this learning model, there are regional centers where students can get advice from teachers or take a final exam.

In such universities, great freedom in choosing the forms and styles of educational activity is provided to both teachers and students.

Secondary (dual) model. In such a system, the university teaches both full-time students, partly full-time and distance learning programs. Both will have the same class schedule, study programs, exams, and assessment criteria. Universities that usually develop a dual model are traditional universities where the number of full-time students is greater than the number of students studying remotely. This is why, at the same university, the two forms together benefit more full-time students who have access to more study materials.

Distance learning courses at such universities are not always beneficial, sometimes this is partly due to the full-time education of students.

A mixed model. This model assumes various forms of distance learning for university students, or rather the integration of forms. For example, full-time students are enrolled in distance learning programs or partially in parallel with full-time courses taught by a teacher at this university.

Currently, distance learning can be considered as forms of education that complement the full-time and part-time forms of education that exist in our republic [5:10].

Didactic support, which makes up distance learning, is carried out using electronic means. An electronic textbook and textbooks, training programs, video tutorials, etc., educational platforms, etc. are used. One of the main tasks of organizing distance education is to create its educational and methodological base.

According to the analysis of foreign experience, the main participants in distance learning are usually students, teachers, lecturers, moderators, teachers, support staff and administrators, each of whom has a special significance. Meeting the learning needs of students is the main goal of every effective distance learning program.

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One of the ways to improve the distance learning system is to integrate a distance learning system into it. An actual and promising means of increasing the effectiveness of the educational process is: on the one hand, providing a managed system, monitoring the educational process and creating conditions that stimulate the student's independent work; on the other hand, reducing the teacher's workload and directing his efforts to the development of educational and methodological support for the lesson.

In the curriculum of the correspondence department 60111200-Fine Arts and Engineering graphics, the educational direction contains the subject "Descriptive Geometry", we must provide resources covering the content of educational electronic educational complexes on each subject topic.

Solving metric and positional problems using the AutoCAD program for distance learning of students of descriptive geometry can be very effective in the educational process. To explain graphical tasks in the most convenient way for students, it is necessary to follow the order of their drawing step by step, as well as create an animation of the sequence of solving the problem. When the prepared animation is posted on the platform, students can use it at any time.

Content is additional information that complements the Internet tool-texts, multimedia, graphics. Hypertext markup is implemented in the form of pages using markup tools [4:51].

Educational content may include multimedia elements-audio and video frames, static and animated graphics, hyperlinks and other objects. The effectiveness of training depends on the correctness and systematic organization of the content [4:51].

The frontal projection ΔABD (A'B'D', A"B"D") belonging to the plane P (PH, PV) is given (Fig. 1). Let the missing projection and the actual size of ΔABD be determined by combining with the plane the projections of its points A, B and D into the plane H.

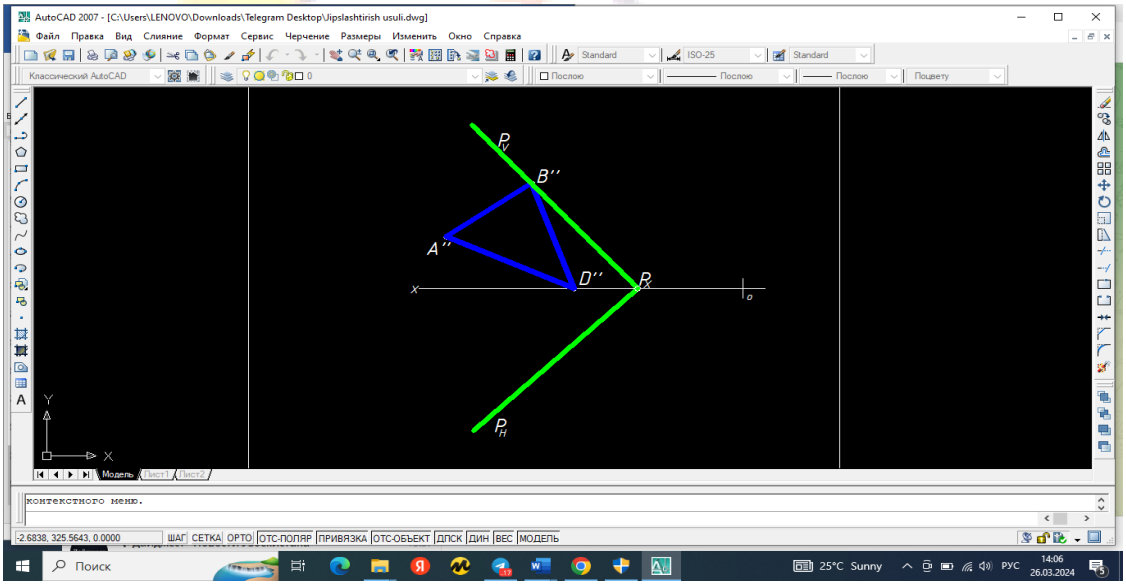

Fig. 1

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The horizontal projection ΔABD (A'B'D', A"B"D") belonging to the plane P (PH, PV) is determined (Fig. 2).

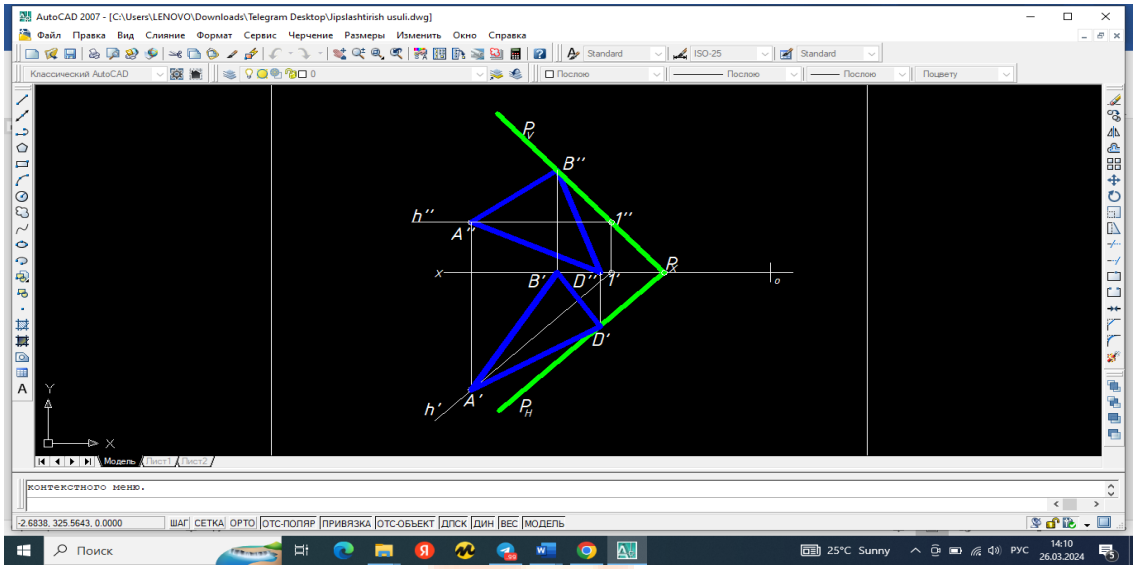

Fig. 2

By selecting an arbitrary point 1 on the PV–frontal trace of a given P-plane, its radius of rotation Px 1" is determined and, rotating the PV-trace of the plane around the PH-trace, it is aligned on the plane (Fig.3).

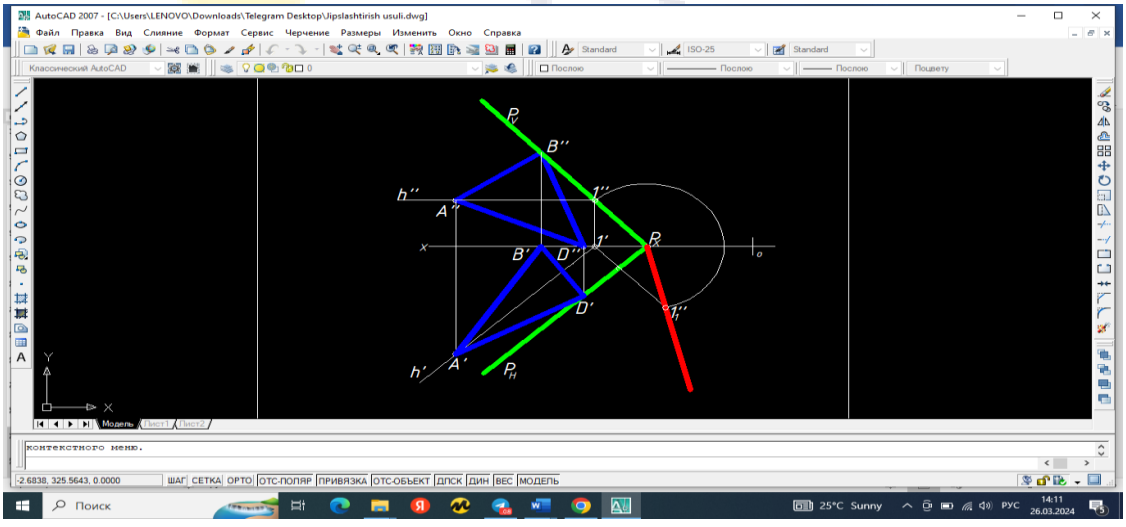

Fig. 3

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To determine the actual size of a geometric shape related to a given plane in the general case, its characteristic points are determined by superimposing projections on the plane. The natural value (Fig.4) ΔABC (A'B'C', A"B"C") belonging to the plane P (PH, PV) is determined by combining its points A, B and C into the plane H.

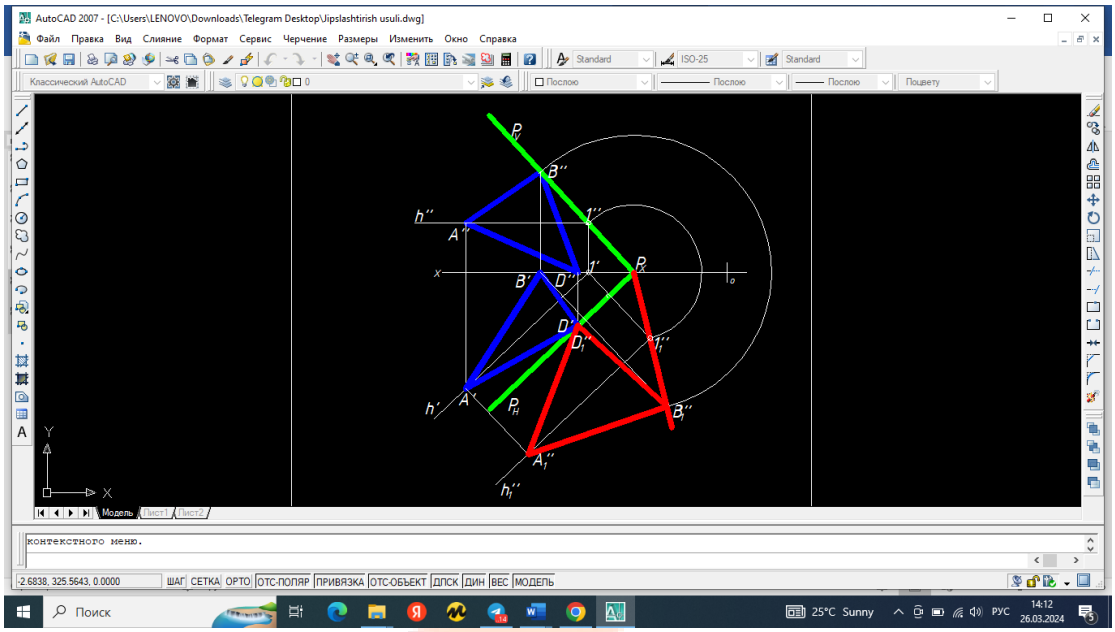

Fig. 4

Animation is created in PowerPoint by dividing each line of the drawing into parts or by placing each of them separately, as indicated above, and creating a separate animation.

We can also prepare a video tutorial by recording the sequence of performing the above graphical task in the FastSton Captur program.

When training teachers from engineering graphics, distance learning serves to solve the following tasks.

- To ensure equal access to education for all students wishing to receive education in all regions of our republic and abroad.

- Improving the quality of education through the use of the scientific and educational potential of leading universities, institutes, training centers, retraining institutions, advanced training institutes and other educational institutions.

- To provide the opportunity to receive additional education in parallel with basic education and basic work.

- Meeting the learning needs of students and expanding the educational environment.

- Creation of opportunities for continuing education.

- Ensuring a new fundamental level of education while maintaining the quality of education.

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Summing up the above, we can say that the introduction of elements of distance learning in educational institutions is beneficial in all areas.

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