IMPROVING THE QUALITY OF TEACHING DRAFT GEOMETRY IN UNIVERSITIES

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ABSTRACT

The article discusses the modern possibilities of computer technologies in teaching and innovative methods of teaching descriptive geometry in universities, which require modernization, improving the quality of teaching in universities

Keywords: Higher professional education, professional competence, methodological support, descriptive geometry and engineering graphics.

INTRODUCTION

An urgent problem is the introduction of innovative methods in the process of teaching university students. ..At present, there is an intensive search for new forms and methods of teaching, which allows us to talk about the transition of teaching from a directive model to an interactive, more productive and personality-oriented student.

The future of society depends on the quality of the teacher's professional training system, its intensity and mobility. The results of the teacher's activity and the educational process itself are associated with the training of a citizen-person - a future specialist, ready to adapt to difficulties, competitive, prepared to be included in all conditions of modern socio-economic relations. For this, it is necessary to be aware of one's own interests and inclinations, the characteristics of one's character, the ability to assess one's capabilities in the process of vocational training and education, in order to achieve a more complete conformity of oneself with the chosen profession. Which is facilitated by the high-quality mastering of professional and special knowledge.

The basis of descriptive geometry is the study of geometric images in orthogonal projections, that is, the properties of spatial forms are studied directly from the drawing itself. In other words, the student does not have before him the originals being studied, but only their flat images. This is the greatest difficulty of the science under consideration. Thus, descriptive geometry is the theoretical basis for the drawing course and is closely related to it.

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Materials and methods

The main textbook for practical exercises in descriptive geometry is the "Workbook". It should be designed in such a way that students execute solutions directly in the workbook and do not

spend additional time redrawing the graphical condition. In addition, the possibility of an incorrect decision due to distortion of the graphic condition during redrawing is excluded.

The assimilation of the course is facilitated by the use of models, both specially prepared for descriptive geometry, and natural technical details, as well as demonstration of Flash animations. In the classroom on the discipline "descriptive geometry" electronic models and virtual posters should be widely used to help students in solving spatial problems on the plane of the drawing. Working with flat images, learners have difficulty in recreating the visual image of the object. An electronic model that can be moved, rotated, changed properties (color, gloss, transparency), cut off parts, is a tangible help for the correct solution of the problem.

One of the main pedagogical requirements is that each lesson is interesting, one that makes the listeners want to deeply comprehend the essence of the subject.

Based on the goals and objectives of teaching, teaching methods can be considered as the construction and functioning of a didactic system for solving specific educational problems.

Result and discussion

Descriptive geometry tasks contain a wide range of complexity - from simple educational tasks to identifying and solving original, design and applied problems. Problem-based learning requires students to search for themselves independently.

There have been training systems for a long time that offer educational material and test tasks in the form of texts and images, information in such systems has a linear or tree-like structure, in modern versions, hypertext and multimedia are used and remote is provided interaction with the learner. The difference between them is mainly in the arrangement of topics and the quality of the illustrative material. We can mention the work, where the problem of increasing the clarity is posed and simple and effective means of visualizing the solution of problems of descriptive geometry are proposed. Later, systems appeared that made it possible to perform the solution graphically on a computer screen; as an answer, the student had to indicate one or more points of his drawing (one of the transl).

Also noteworthy is the electronic learning system, which provides an integrated approach to teaching computer drawing and geometric modeling and provides an interconnected study of two-dimensional and spatial constructions. But even in the best known to the author systems of constructing on a plane by the Monge method, corresponding volumetric objects are not generated.

Under the guidance of the author, several versions of the training system were developed, which allows you to construct on the Monge plot and at the same time generate three-dimensional representations of objects and view the results in axonometry. The system can be used both for work under the control of the user, and in the mode of playing training lessons. To create lessons, a special language is used that describes geometric shapes and operations on them. Lessons can be formed both with the use of a text editor and in the mode of memorizing user actions. In this case, each operation on objects is associated with one or more sentences of the above language.

The introduction of computer technologies into the learning process is of particular relevance today. The progress of mankind is determined by the level of development of its productive forces and, above all, by the human intellect, for the formation of which certain requirements

are imposed; adequate perception and processing of information in conditions of distribution of attention and time constraints, professional competence.

The goals of graphic training are the formation of skills in elementary geometric constructions, initial skills in working in a graphic editor /geometric graphics/, analysis of verbal-visual information /projection graphics/, increasing labor productivity when creating technical documentation /computer graphics/. Curricula of secondary vocational education are focused on the formation of the verbal-logical nature of thinking, and the development of its logical-figurative component is not taken into account.

CONCLUSION

The formation of figurative geometric thinking must begin at an earlier age than is currently happening. There is inconsistency in the reform of primary, secondary and higher vocational education. A consequence of this is the underdevelopment of spatial representations of the first two year students. The formation of space perception skills begins with the study of elements of geometry, descriptive geometry, engineering graphics and CAD. The organizational principles of traditional teaching in space perception were based on a relatively large amount of workload. At present, the drawing course has almost halved the amount of hours of engineering graphics in secondary specialized educational institutions. This significantly reduced the possibilities for the formation of analytical skills in thinking activity.

High speed of development of methods and means of computer-aided design has led to an urgent need to study the pedagogical aspects of geometric modeling.

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