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Increasing Students' Creativity By Using Innovative Methods In Teaching The Topic Of Visuals

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ABSTRACT

This article takes the topic of manifestations, provides recommendations for increasing students' creativity and developing their creative abilities through the use of innovative methods, as well as information on the topic of manifestations and information from foreign literature.

Keywords: Visibility, models, orthogonal, projection, horizontal, frontal, profile, detail, parallel.
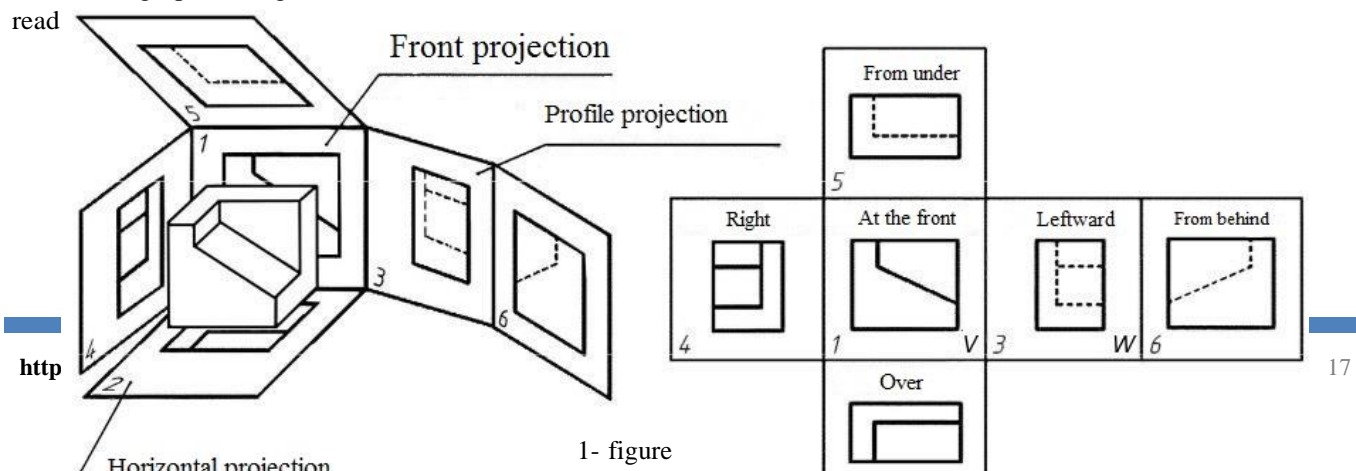
INTRODUCTION

In engineering graphics, a drawing that shows the drawing i.e. objects or parts of them as the main means of solving problems in its fields is carried out mainly according to the drawing rules and taking into account the established norms. These rules are the same for all sectors of industry and construction.

The image of the drawing should have a complete picture of its shape, structure, size, as well as a complete picture of the drawing and give a complete picture of the information. When drawing drawings, it is carried out in standard drills.

When drawing a drawing, the format field should be evenly filled and placed. The number of drawings drawn should be enough to get a complete and accurate drawing of it. The drawing should be compact and include a minimum number of graphic images and texts that are sufficient to read
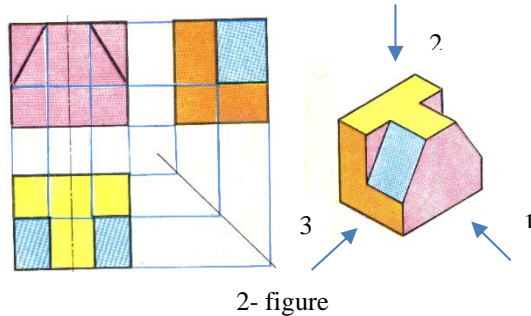
When performing drawings, it is also necessary to attach great importance to the types of lines, and any drawing is drawn using lines of different magnitude.Bu chiziqlarning grafik tasvirlanishi va tatbiq etilishi The graphic representation and application of these lines has confirmed the following views of the drawing lines of OʻzDSt 2.303:2003.

To fulfill the theme of appearances, the main appearances according to OʻzDSt 2.305: 2003 are six and are depicted as Figure 1: 1. At the front, 2. Over, 3. Leftward, 4. Right, 5. From under, 6. The rear view is called. Of these, three are considered the main view, the frontal projection of the detail is called the view from the head or front, the horizontal projection is called the view from the top, the profile projection is called the view from the side or from the left.
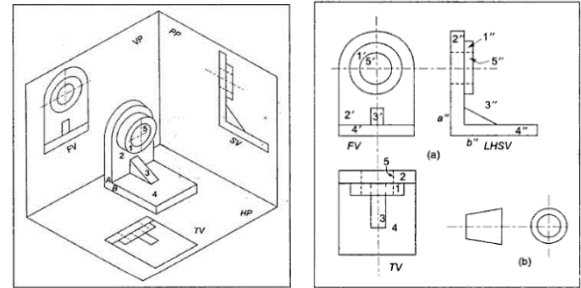

1- figure

Such issues include:

• to explain the theoretical aspects of the topic being studied to students who have not mastered it for certain reasons;

• practical assistance to students who, knowing the theoretical material, do not know the practical application

2- figure

3- figure

In foreign higher education, the visual orthogonal projection depicts a typical machine detail in Figure 3, consisting of: (1) a cylindrical disc, (2) a semicircular and quadrangular body, (3) a perforated prism consisting of a half-cylinder and a quadrangular body, and a right-angled triangular prism. The main surface of the machine part is placed parallel to the plane of some projections. Their projections are: front view, top view, and side view.

In our current way of life, 2D, 3D software tools have come into kelagn, it is precisely drawing drawings, understanding and at the same time making models through a 3D printer that serve to increase the student's spatial tassavur, whether the student first of all has to improve graphic literacy technology to work through drawing weapons, knowledge of drawing rules

The subjects of lecture and practical training in drawing will need to be fully descended from the subjects of projection drawing, mechanical drawing, archduchy construction drawing and views in the topographic drawing departments. It happens that students find out to what extent they have mastered the topic and their methodological skills depending on these works. The organization of conducting these works consists in determining how much students know a particular department in the program. This is the main issue, but the student should not be limited to this task. In addition to the main issue in the teaching of drawing geometry and engineering graphics, other issues (if these issues do not interfere with solving the main issue) should be solved.

of drawing a detailed drawing given in this material;

• Determine how well students know the theoretical material covered through individual oral questioning;

• to identify and analyze what difficulties students are experiencing when they are doing a given job;talabalar auditoriyada va auditoriyadan to determine how they use subject-specific literature outside the classroom;

• Determine how students use INTERNET resources to obtain information on the topic, among other things.

In vaqit, which is the clock supply of Science, in addition to the report, practical (laboratory) training, hours are also allocated to independent educational topics, we can see that independent education is given a lot in modern. Due to the properties of science, drawing is a science that takes a long time to solve graphic solutions, like a number of graphic disciplines, including the science of geometry and engineering graphics, since this process is associated with the performance of graphic representation, which takes a lot of time. Very little time is spent on independent and supervised work in most subjects taught in higher education institutions. It fully satisfies the requirement to perform the learning task based on the set requirements. Teaching and checking the science of drawing geometry and engineering graphics in higher education institutions showed that, in some cases, it is impossible to draw up assignments that can be completed within one lesson and

fully meet all the requirements of modern pedagogy.

Let's recall these requirements.

1). The assignment should be one that requires the full implementation of the knowledge, skills and qualifications obtained from the previous lesson;

2). Let the severity of the assignment allow them to work seriously, in addition to being consistent with the age characteristics of the students;

3). The content of the assignment must be linked to the living and taken from the area of local conditions as much as possible.

The study of tasks in sets of exercises and issues published in the subject of drawing geometry and engineering graphics shows that, not counting some cases, it mainly meets the above requirements. But it takes at least two to three lessons to complete all of them (not including some). There are positive aspects to students completing their independent work in 2-3 lessons. First, during this time, students perform more or less important work, and from the second, the student brings up the ability to work painstakingly mentally in the long run. Increases the ability to think thoroughly in the process of creating an image. It makes it possible to lose shortcomings in work independently or under the guidance of a teacher, and thirdly, such a period allows students to fully interpret their individual qualities and, in this regard, to work with an individual student individually. The procedure for performing the work is approximately as follows:

The teacher individually gives assignments in several options (Figure 4) and tells them the following:

a) **Training assignments:**

• Make a sketch of a given detail based on its clear image (axonometric projection);

• apply projections;

• draw the lines of the size and outline and draw the overall dimensions of the part;

• place three dots on different surfaces of the detail and dip these dots into projections so that the conditionally obtained cut of the detail does not fall into the applied part;

b) Terms of execution:

• the work will be completed in two (or three) lessons;

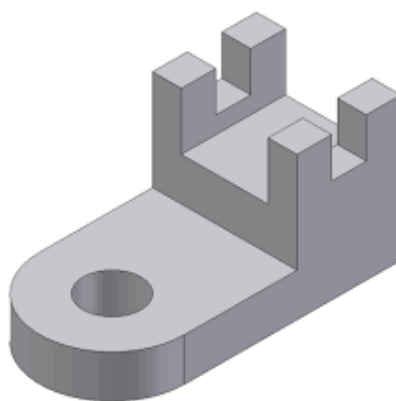• work is done only during class time, not assigned as homework;

• students are allowed to use textbooks, teaching and methodological manuals on science and theoretical use of the relevant reference (spravochnik);

• It is prohibited to use any additional drawings that are suspected of being copied;

• without the permission of the teacher, there was no way to process the work on another piece of paper;

• when students are doing work, the teacher must keep an eye on the course progress, check that students do not miss their study time unproductively when they are completing the tasks mentioned;
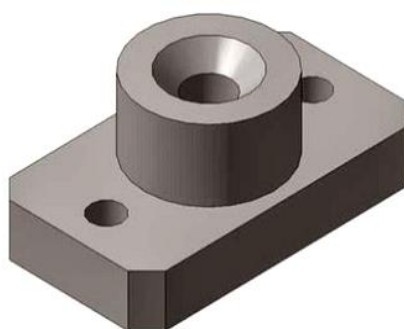
• at the end of the lesson, the collected independent work is reviewed by the teacher, identifies the shortcomings in the work and the empty sides of the two stages mentioned in the study of the topic, etc.

1- option

2- option

3- option

4- figure

At this stage of work, the teacher examined the independent work performed by the students and said to the edge of the drawing paper: "speed up the pace of work", "the placement of detail views is somewhat incorrec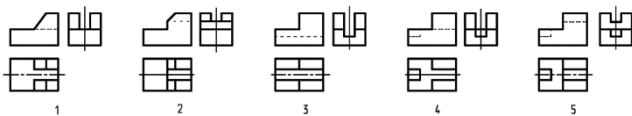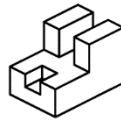t", "The Detail view is much smaller", "Don't rush!" , "Very good!"and the words that inspire them, such as "writing", give a positive result. Only then will it be easy for students to organize their independent work, as well as to check them.

Pedagaog focuses on the effective use of interactive techniques in lecture and practical classes in the course of conducting lessons. In this, above all, interactive methods were selected for lectures and practical classes with the ability to ensure the expected result, taking into account their characteristic features:
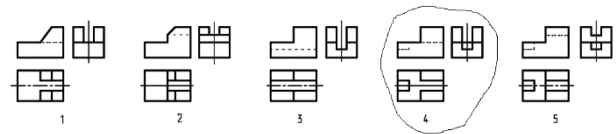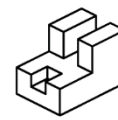
"Picture riddle", determining the projection of an orthogonal projection through a clear image.

Question

Student response

In our opinion, it is advisable to focus on the following factors that determine the effectiveness of Education:
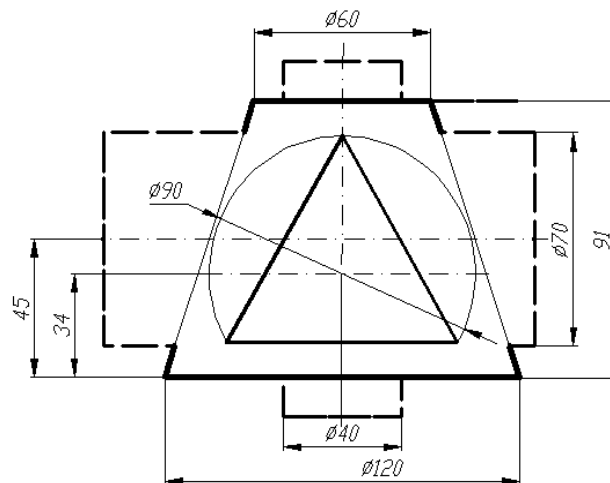
- training form;

- selection of optimal combinations of teaching and control methods;

- pace of training;

- the scientific, systematic and consistent connection of learning with life;

- An optimal set of educational tools.

In order to further awaken students in their interests in science and further shape their creative abilities, the use of modern graphic programs will serve to further increase the effectiveness of the lesson.
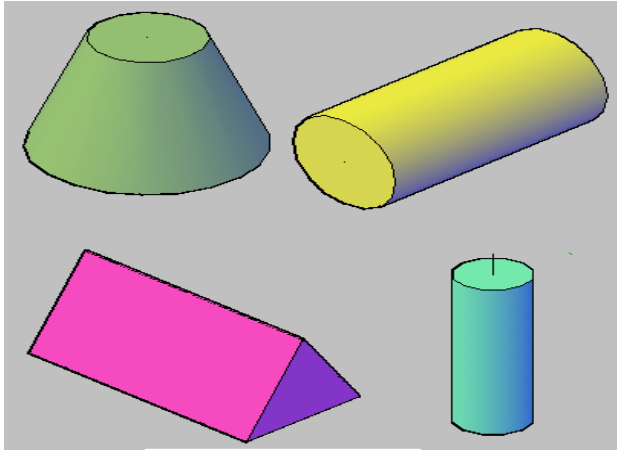
Modern graphic programs are being implemented in all areas by the fact that they have such tremendous opportunities as the effective construction of graphic images of objects and objects, the design of which is extremely complex in 2D format-in two dimensions. Among these are all subjects of the educational field, including the subject of drawing, which also includes the construction of projections.

In engineering graphics, the construction of intersecting lines of surfaces and transition-intersection lines from one to another of the surfaces found on detail surfaces and pores is a complex and time-consuming process.

5- figure

Therefore, graphic work automated halqaro we will consider in 3D format of the AutoCAD program, which is considered a standard program, that is, the model of a clear image – isometry of the detail given by the drawing and the easy, convenient and efficient construction of transition

6- figure

lines in two - dimensional views of the detail on its basis, that is, the automationherefore, graphic work automated halqaro we will consider in 3D format of the AutoCAD program, which is considered a standard program, that is, the model of a clear image – isometry of the detail given by the drawing and the easy, convenient and efficient construction of transition lines in two - dimensional views of the detail on its basis, that is, the automation Let it be crossed by two horizontal (Ø70 mm) and vertical (Ø40 mm) cylinders. Let the prism, which is also a single three-sided, scale shown in the drawing, with the head projecting onto the plane of view, be crossed as in the drawing. Such a task is usually performed in two stages. In the first stage, models of the given cross – sectional cone-object body and cutting bodies are built in 3D.
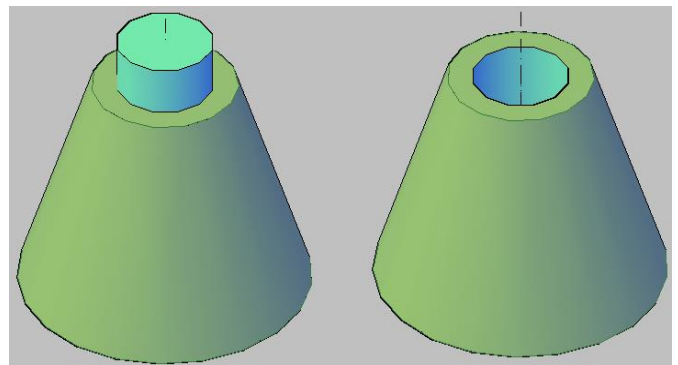
In the second stage, the body of the object and each of the cutting solids are brought into the body one after the other, and the body is pierced with it using the command " - vchitanie - subtraction"-subtracting. Or the body is assembled into the body as all the cutting bodies are drawn, and they are subtracted one after the other in the required sequence-thought out.

Stage 1 is performed in the following sequence:

1. Three - dimensional models of the cut cone and the cutting prism and cylinder will be built, Figure 6. They are made using the corresponding body commands on the" Modelirovanie " panel.

After making a model of a truncated cone and a cutting body, the views of the truncated cone are projected as follows:
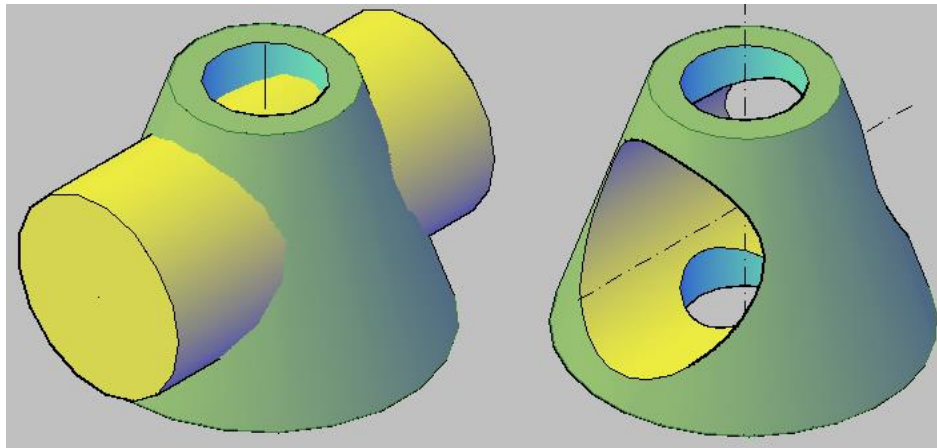
1.   The incision calculated by the main body is made by taking the center of height of the cone as the base point, and the incisor is cut and cut with a vertical cylinder.

2.   Using the command " - vchitanie-subtract", i.e., the body is confirmed by the "Enter" separating the mouse with the left button, and if the carved vertical cylinder is separated and the "Enter" button is loaded, a cylindrical groove with a diameter of 40 mm is made, Figure 7.

7- figure

3.   The   second horizontal hole, a cylinder with a diameter of 70 mm, is inserted into the body cone causing it, and a cut cone is pierced using the command " - vchitanie-subtraction"-engraved, Figure 8.
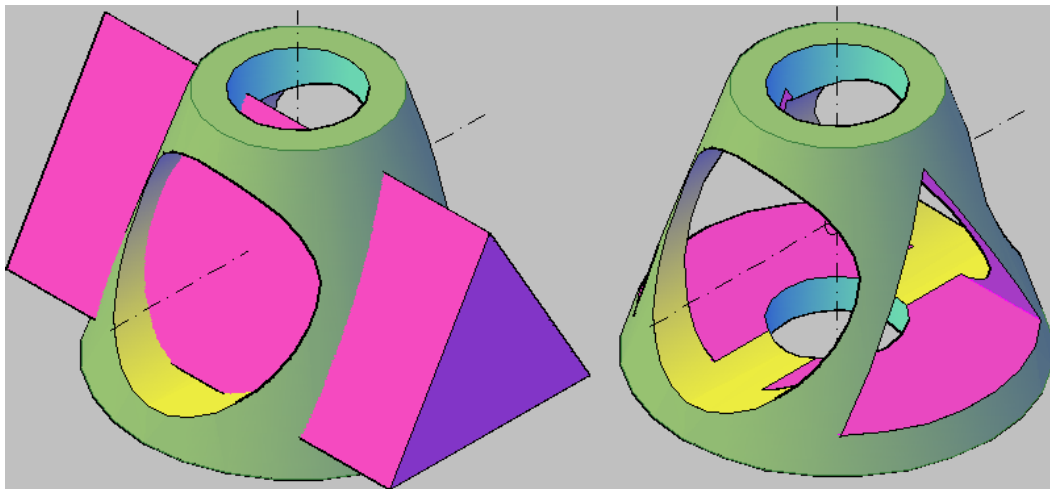
4. The body is copied into a cone, and the third prism is copied as the cylinders above.

8- figure

Then, using the command" -vchitanie-subtraction", that is, the body is confirmed by the" Enter "separating the mouse with the left button, and when the engraving Prism is separated and the" Enter " button is loaded, the front and back of the detail is cut off, and the cross-section line is formed automatically, figure 9.
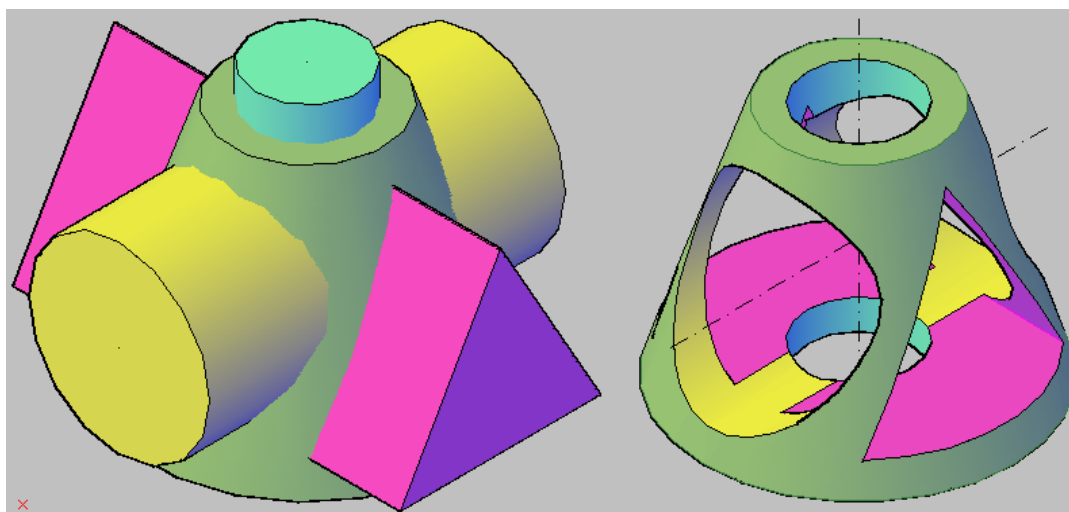

9- figure

As noted above, the body is easily constructed an isometry of the cross - cone by folding into the body as in the 10th drawing, and then subtracting them from the axial body one after the other.

Now let's move the given cross-sectional cone from 3D to 2D and see if it is possible to efficiently construct the drawing and the complex intersection-transition lines in them.

10- figure

In practice, the optimal construction of the standard isometry and dimetries of a geometric figure, surface and bodies is described as follows:

Students will find ways to independently eliminate the problems they may face when solving their thematic knowledge. In addition, students can work on their own in the process of obtaining an independent education and conduct independent research.

Taking a creative approach to the optimal construction of axonometric projections, it was found that obtaining their frontal projections as secondary projections of geometric figures is a factor in activating the skills and competencies of reading drawings.

In isometry and dimetry, the design of regular polygons, circles, simple geometric surfaces and solids was developed using the "Modelirovanie" panel commands of the AutoCAD program.

Moving the obvious model performed in 3D to a flat 2D model, the efficient-automatic construction of the details and the transition lines in them was described.

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