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**DIDACTIC TERMS AND CONDITIONS OF USING COMPUTER DESIGN TOOLS
IN THE TRAINING OF SPECIALISTS IN THE FIELD OF TRANSPORTATION
ENGINEERING**

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Abstract

In this article, you will get acquainted with the conditions for using computerized design tools in the training of specialists in the field of vehicle engineering. In addition, suggestions were given to give students knowledge on computer design.

Keywords: Science, electronic virtual library, SDAS, schematics, Solid Works, didactic requirements.

Introduction

Today, science and technology, production tools, and technological processes are almost completely computerized in all developed countries. Also, in all production enterprises of the world, as well as in the educational system, computers are used on the basis of engineering computer programs, which have great potential for automating design work in the creation of new techniques and technologies. The Ministries of People's and Higher Education and pedagogic scientists of higher educational institutions have assigned great importance to the computerization of educational subjects in all stages of the continuous education system of our state in order to prepare specialists who meet the requirements of the present time.

It is not for nothing that the 21st century is called the "Information Technologies" century. Every aspect of our daily life cannot be imagined without computers. As a result, modern pedagogical technologies based on modern information technologies entered the educational system of the Republic of Uzbekistan. Modern information technology means multimedia, transition from one language to another language and from one alphabet to another alphabet, Internet, WEB technology, electronic virtual library, distance education, presentation and other technologies.

The 21st century is the century of development and organization of new techniques and technologies based on computers. Even in folk art, which has been developed for a long time, performing groups on a computer requires fundamental changes in the field of art. In particular, the use of computers in engineering design, as in all fields, has become an urgent problem today. It should be noted that the subject of "Computer design" includes the subjects of "Automatic design of land transport systems" and "Fundamentals of automation of design processes". All engineering works are performed on the basis of programs using "Computerized design". Also, information such as mathematical modeling is created on the



basis of practical structured programs. In "Automatic design of land transport systems", all types of design are performed using a package of ready-made commands, that is, in this discipline, users perform design directly on the screen as if they did it naturally, without creating practical programs. This science is the initial part of the science of design automation system-"SDAS". The main goal of teaching the subject "Fundamentals of Automation of Design Processes" is to teach students the procedures and rules of computer-aided execution of all types of design - drawing, modeling, animation, and schematics in two dimensions or three dimensions. The main issue of "computer-aided design" is to teach students the necessary knowledge and skills to freely perform design and modeling of technological processes using a package of practical and operational programs and ready-made commands. It includes the subjects "Fundamentals of automation of design processes". Classes on the subject of "Computer design" are held in the form of practical graphic classes based on the model program approved by the Ministry of Higher and Secondary Special Education in 2021 for the training of bachelors and engineers in higher educational institutions. In each practical session, for 2530 minutes, the students were required to perform tasks such as drawing the components of the machine detail design primitives on the computer screen, modifying them to create acceptable options, storing them in memory and printing them out on paper theoretical knowledge is given step by step. The rest of the training builds skills and competencies using practical commands such as creating, editing, dimensioning, and linking objects. Students strengthen the knowledge and skills they have acquired during the training and improve their theoretical knowledge, skills and practical skills in the process of performing five design tasks.

Now, on the basis of the above, it is necessary to know how to use modern engineering programs and mathematical modeling editors to perform design work on a computer. In doing so, he developed his own optimal methodology and asked himself the question, "Why should we use the Solid Works engineering program?" Because Solidworks and similar software systems are currently the international standard for automatic design. Although Solidworks has been around for over 10 years, it is still popular among graphics software. Because the Solid works program is perfect and popular, and it is an automated design program, which makes all types of schemes and drawings with high accuracy and quality. Also, this program helps users to fully realize their creative potential. Therefore, it has become common for millions of design experts, scientists, engineering technicians and students from more than 30 countries of the world to use the Solid Works system for design work in 18 languages. Elements of graphic information in the Solid Works system are executed on the basis of a sequence of direct dialogues by entering their given dimensions into the computer using a package of ready-made commands corresponding to them. When choosing the subjects of computer-aided design training, it was decided that it would be appropriate to start with teaching students how to design details on a computer. Because the student or students who have mastered the design lessons on the computer, were able to create images of any complexity on the computer. As you know, any design exercise consists of points, sections, straight lines, polygons, circles, arcs and a set of curves that can be made in different ways. These primitives can be painted, typed, thickened, circle-based joins, delete excess lines, shift, multiply or axisymmetric image, write text, size, and done The goal is to teach the practical use of commands such as editing jobs.



Before performing drawing primitives on a computer, it is necessary to load the Solid works program and familiarize yourself with its user interface command tool panels and know how to use them. Therefore, in this exercise, students will be introduced to the Solid Works program loading and usage interface menus and the toolbar of the tool-workbench.

In the next lessons, the content of the tasks will become more complex in accordance with the topics covered, and thus the students' independent work skills will be formed and the acquired knowledge will be strengthened. Such interesting issues should meet the following didactic requirements (Figure 1):

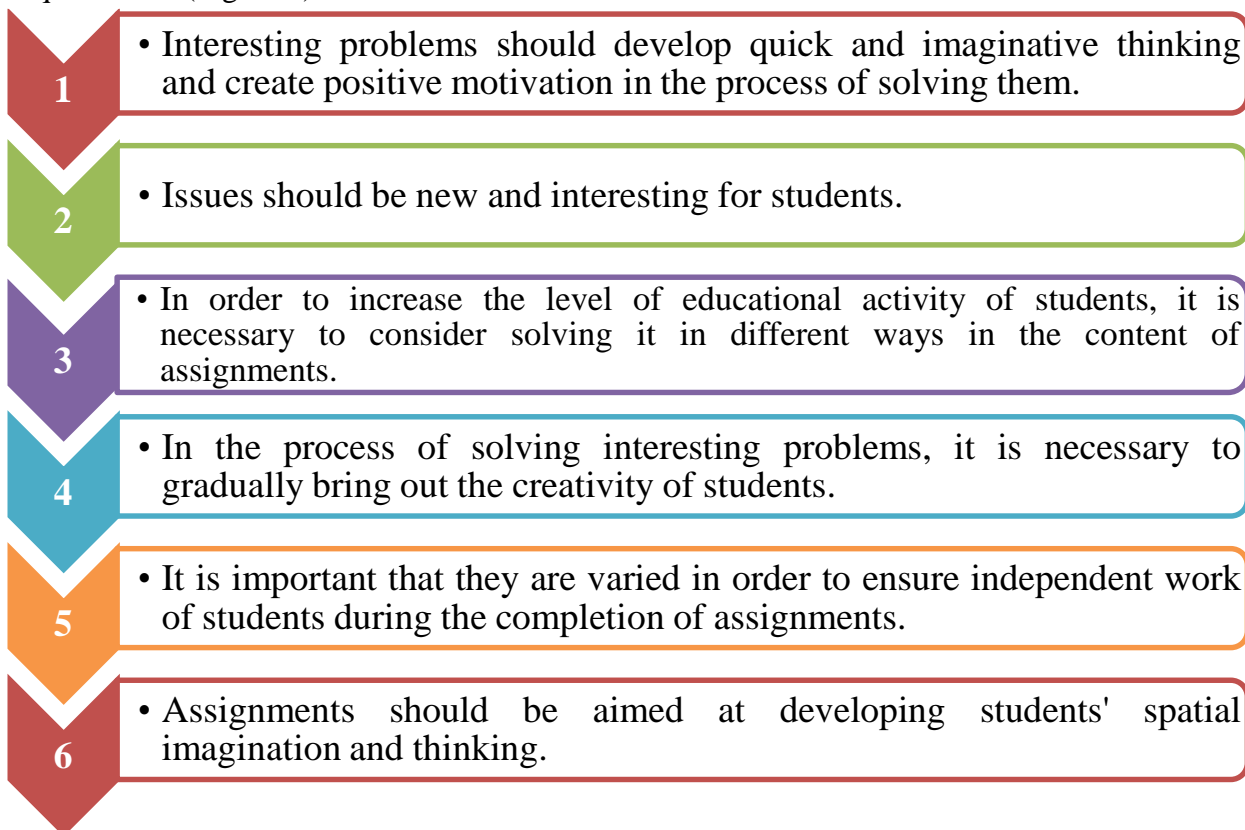


Figure 1. Didactic requirements.

The conclusion is that in independent education classes, the goal is to achieve 100% completion of personal tasks by students on the computer. In order to provide students with computer design knowledge, first of all, a qualified specialist teacher in computer design and the necessary textbook, as well as sufficient teaching hours and computer equipment should be allocated for teaching this subject.

References

1. Kovalenko V. Design automation systems yesterday, today, tomorrow // Open systems. 1997. No. 2.
2. Bednarzhevsky V.S., Dobrotina G.B. Overview of CAD/CAM/CAE systems for modeling and designing power engineering equipment. News of the Altai State University. 2002.

3. Kulmuradov D.I., "The role of automated design systems (CAD / CAE / CAM) in modern production"// Innovative solutions to technical, engineering and technological problems of production (October 29-30, 2021) 748 pages.
4. Akhmedov J.R., Kulmuradov D.I., "Computer-aided design (CAD, CAM, CAE)" training manual (order of O and O'MTV dated 25.12.2021 No. 538).
5. Ershov G. Pro/Engineer in questions and answers // Open systems. 1997. No. 4.