



METHODOLOGY OF TEACHING THE DEPARTMENT OF MACHINES, MECHANISMS, INSTRUMENTS AND THEIR USE IN TECHNOLOGY LESSONS ON THE BASE OF VIRTUAL STANDS

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Abstract: Organization of multimedia lessons about machines, mechanisms, tools and their use and how to work these tools in technology classes taught in secondary schools, as a result of which students learn metalworking and the formation of the ability to use them in life is discussed.

Key words: Mechanism, machine, computer software, learning, vision, interactivity, accessibility, modeling, computation, design.

Today's level of development of our independent republic requires the development of optimal (alternative) methods of education management and its implementation. For this reason, in this scientific-methodological work, we set the goal of mastering the "Theory of Machines and Mechanisms" section of Technical Mechanics, a new management method, i.e. developing a system of goals and clarifying the management method of sequentially finding their solution. . State educational standards (templates) are a set of requirements for global education and represent the main norm in education. It is known that the State Education Standards (DTS) were formed on a completely scientific basis. Taking this into account, we found it necessary to express the sequence of knowledge that a student should acquire in the department "Mechanism and machine theory" (MMN) as follows:

- knowledge of the main types of mechanisms;
- knowledge of kinematic and dynamic characteristics of mechanisms;
- understanding the principles of operation of mechanisms;
- understand the interaction of mechanisms in the car;
- ability to find kinematic and dynamic parameters of mechanisms;
- the ability to find the optimal parameters of the mechanisms being designed with the help of modern computers, taking into account the kinematic and dynamic characteristics;
- they should be familiar with modern measuring techniques of kinematic and dynamic parameters of machines.



Figure 1. Turning, planing, welding: Universal lathe

The theory of mechanisms and machines is an important subject for engineers working in mechanical engineering, industrial production, robotics and other fields. It is known that important engineering works such as designing and analyzing mechanisms and machines, increasing their efficiency and reliability are taught in this science. In traditional teaching, the science of mechanics and machine theory was implemented through lectures, seminars and practical training. However, in recent years, modern computer programs have become increasingly widespread, which can significantly increase the effectiveness and quality of teaching. The advantages of using computer programs in teaching this subject are as follows:

- Visualization: Computer programs allow you to visualize the movement of mechanisms and machines, which makes it easier to understand complex theoretical concepts.

- Interactivity: computer programs allow students to actively participate in the learning process, which increases their motivation and interest in science. Accessibility: Computer software allows students to access learning materials anytime and anywhere. The main types of computer programs used in teaching the theory of mechanisms and machines

Software for modeling the movement of mechanisms: allows to describe the movement of mechanisms and machines under various conditions. This allows us to clearly see how the mechanisms work and how their characteristics depend on various parameters.

- Programs for calculating mechanisms and machines: allow to calculate kinematic, dynamic and operational characteristics of mechanisms and machines. As a result, it is possible to determine the parameters of the mechanisms necessary for design and analysis.

- Programs for the design of mechanisms and machines: allow to develop structures and designs of mechanisms and machines with specified parameters. This will allow students to gain the construction and mechanical design skills they need for their future jobs.

In conclusion, it can be said that modern computer programs play an important role in teaching the theory of mechanisms and machines. Such computer programs significantly improve the efficiency and quality of teaching, make it more visual, interactive and convenient to learn, teach students the theory of machine mechanisms, form their knowledge in technical sciences, and create new technologies in the future based on the needs of the times. creates.

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