

**CHARACTERISTICS OF USING MULTIMEDIA TECHNOLOGIES IN
TEACHING ENGINEERING SCIENCES**

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Abstract: The article presents concepts for teaching mechanical engineering using multimedia technologies in accordance with general methods and forms of teaching, designed to awaken in students a holistic vision of production and mechanical engineering.

Keywords: Multimedia, 3D technologies, Interactive whiteboards, Sound system

With the development of modern digital programming systems and computer technologies, the scope of information resources and education, as well as opportunities for studying and teaching are expanding, and the activities of educational subjects of teachers and students are also changing. Orientation of multimedia technologies and instruction manuals to the educational process, their main qualities, appearance, flexibility, and the integration of various types of multimedia educational information make the educational process more visual and improve the student's mastery, develops its own characteristics.

In the teaching of mechanical engineering without multimedia weapons, a multimedia program is first necessary for the production of general methods of education and cleaning tools. Mastering the science of "Mechanical engineering technology" by multimedia technologies will help students to develop a holistic vision of production and mechanical engineering, experience capable of systematic clear thinking, comprehensive production of the state of technical production, to understand production parts to be interconnected. It allows to improve the influence of design and technological readiness of work and engineering production.

The possibilities of multimedia training manuals are very wide, including the presentation of demonstrations and practical processes, computer modeling of technical processes, audio commentary by the author, audio and video clips, hypertext, links, including the presence of hyperlinks, quick execution of complex calculations, including presenting information in digital and animated format. All this arouses interest in science among students and allows not only in-depth mastering of "Mechanical engineering" subjects, but also the use of multimedia technologies in addition to the educational process. When learning science through multimedia technologies, students master multimedia technologies, which allows them to significantly expand the types of educational activities.

We all know that active and interactive methods are widely used in conducting lessons in the educational process in the modern education system. In this regard, today we can observe the active introduction of multimedia technologies in all areas of education. Thus, it is desirable to organize the educational process with the help of multimedia in the system of teaching mechanical engineering in higher education. This process implies certain changes in pedagogical theory and practice.

Nowadays, multimedia technologies are one of the rapidly developing areas of new information technologies in the educational process. Introduction of multimedia technologies to science has its own characteristics and tasks. The first task is to create a special new model of teaching, flexible to the audience, reflecting engineering knowledge in an electronic-digital

1	ISSN 2349-7793 (online), Published by INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT, ENGINEERING AND SOCIAL SCIENCES, under Volume: 17 Issue: 10 in October-2023 https://www.gejournal.net/index.php/IJRCEISS
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background using multimedia technologies. The second task is to describe the mental potential and knowledge of a person that cannot be expressed in writing. According to Researcher G.V., Knyazeva, there are undoubtedly several advantages of using multimedia technologies (effective use of information, combination of audio and visual materials, etc.) in organizing the educational process. Using such technologies, the organization of lessons significantly activates educational information, makes it easier for students to understand and learn.

According to another researcher, the use of multimedia technologies in education is interesting and innovative, significantly enriches the learning process, makes it easier to visualize the material, uses different channels of information perception, makes information effective and interesting.

Today, scientists and programmers are creating a new information-educational environment, in which new approaches to educational content, educational methods and technologies are becoming crucial. Multimedia technologies are one of the most promising areas of computer science. These technologies are aimed at creating a product that incorporates the simulation of sound, video, animation, and other visual effects, including images, text, and data sets that accompany an interactive interface and other control mechanisms. The definition was developed in 1988 by the largest European Commission dealing with the problems of the introduction and use of new technologies. The modern education system in today's global world is increasingly using information technology and computer telecommunications, due to a number of factors, in particular, Higher education institutions are equipped with powerful computer technologies and the development of the international Internet community helps.

The following priority aspects of introducing and applying animation and digital technologies, multimedia technologies to the educational process can be highlighted:

- psychological and pedagogical aspects,
- stimulation of educational computer equipment;
- the role of the Internet in education.

The use of multimedia technologies allows the teacher to more effectively manage the free presentation of visual material, to organize students to work in the "Umbrella" method, i.e. in groups, to perform independent work and practical tasks and to create innovative developments in teaching without breaking the usual ritual. Organizing lessons using multimedia programs in the auditorium places great demands on the computer: especially memory capacity, speakers, high, etc. When organizing lessons using multimedia technologies, it is not just about providing information to the audience during the lesson, but in parallel at the same time a person perceives the process with several senses. In this case, the student clearly understands the subject by seeing and hearing and the percentage of mastering the educational material can increase significantly with his participation in animated activities.

In our opinion, there are several positive aspects of this method of teaching, in which the student;

- Understands the studied material better and deeper
- Students will have the motivation to closely connect with the mechanical engineering field of knowledge.
- Saves time due to significant reduction in training time
- The taught topic remains in the student's memory for a long time, and after a short repetition, the student's opportunities to put this knowledge into practice increase.

It is clear from the above that the current level of development of communication resources opens new opportunities in the field of educational activity. The rapid development of information

2	ISSN 2349-7793 (online), Published by INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT, ENGINEERING AND SOCIAL SCIENCES., under Volume: 17 Issue: 10 in October-2023 https://www.gejournal.net/index.php/IJRCEISS
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technologies, the rapid penetration of the computerized world into our daily life, the emergence of the Internet - all this has affected the traditionally conservative sphere of national education.

In our opinion, multimedia technologies and products are a combination of two areas: a specific field of science and computer technologies. The approach to the lesson with multimedia technologies is a new direction, a new field, a model of innovation.

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