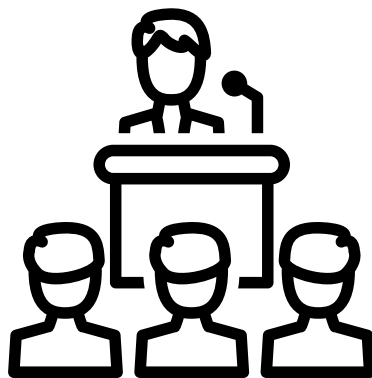




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POSSIBILITIES OF USING MULTIMEDIAL SOFTWARE IN THE PROCESS OF EDUCATION ON ALTERNATIVE ENERGY

Yusuf Jamilov

Basic doctoral student (PhD) of the Department of “Physics”,

Bukhara State University

Umida Baxranova

Master’s student in the chair “Physics”, Bukhara State University

Аннотация:

Мақолада мультимедиа, мультимедиа маҳсулотлари, мультимедиа технологиялари ва мультимедиа воситалари ёрдамида муқобил энергия, муқобил энергия манбалари ва қурилмалари, улардан халқ хўжалигида фойдаланиш, таълим жараёнида муқобил энергияга оид тушунчаларни ўқитишнинг ўрни ва дидактик имкониятлари ўрганилган. Таълим олувчиларда муқобил энергияга оид компетенцияларни шакллантиришнинг педагогик асослари мазмунида мультимедиа дастурий таълим воситаларидан фойдаланиш, ўқув машғулотларини ўтказишда электрон дарсликлар, виртуал лаборатория стендлари, 3D анимациялар ва ўқув тренажорларидан фойдаланишнинг дидактик имкониятлари таҳлили келтирилган.

Таянч сўзлар:

мультимедиа, мультимедиа маҳсулотлари, мультимедиа технологиялари, мультимедиа воситалари, муқобил энергия, мультимедиа электрон дидактик восита, электрон дарслик, ўқув тренажорлари, виртуал лаборатория стендлари, 3D анимация, дастурий таълим воситалари.

Аннотация:

В статье исследуются роль и дидактические возможности обучения альтернативным источникам энергии, альтернативным источникам энергии и устройствам, их использованию в народном хозяйстве, концепция альтернативной энергетики в образовательном процессе с использованием мультимедиа, мультимедийных продуктов, мультимедийных технологий и средств мультимедиа. Анализ дидактических возможностей использования мультимедийных программных средств обучения, электронных учебников, виртуальных лабораторных стендов, 3D-анимаций и тренажеров в содержании педагогической основы формирования у студентов компетенций в области альтернативной энергетики.

Ключевые слова:

мультимедиа, мультимедийные продукты, мультимедийные технологии, мультимедийные инструменты, альтернативная энергия, мультимедийный электронный дидактический инструмент, электронный учебник, тренажеры, виртуальные лабораторные стенды, 3D-анимация, программные средства обучения.

Annotation:

The article explores the role and didactic possibilities of teaching alternative energy, alternative energy sources and devices, their use in the national economy, the concept of alternative energy in the educational process using multimedia, multimedia products, multimedia technologies and multimedia tools. The analysis of the didactic possibilities of using multimedia software teaching aids, electronic textbooks, virtual laboratory stands, 3D animations and training simulators in the content of the pedagogical basis for the formation of competencies in alternative energy in students.

Keywords:

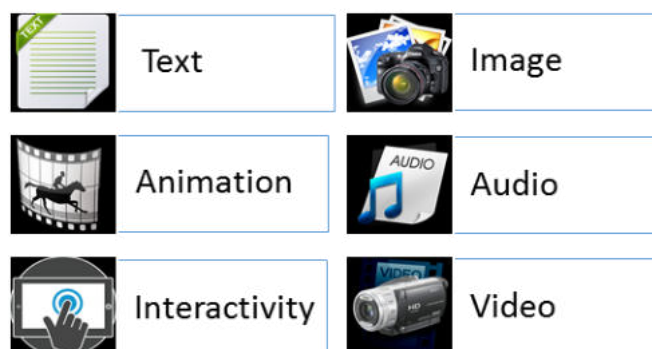
Multimedia, multimedia products, multimedia technologies, multimedia tools, alternative energy, multimedia electronic didactic tool, electronic textbook, training simulators, virtual laboratory stands, 3D animation, software training tools.

Multimedia is an integrated approach to the delivery of educational materials to students based on audio, video, text, graphics and animation effects based on software and hardware of computer science. Multimedia (multimedia - multitasking) - this is computer technology, which has a different physical appearance (text, graphics, images, sound, animation, video, etc.) and is available on different media (magnetic and optical disks, audio - and video tapes, etc.) are areas of information use.

Multimedia provides the user with a great opportunity to create a fantasy (virtual reality) world, in which the user does not play the role of a slow observer on the periphery, but actively participates in the events that take place there, while communicating in the user's usual language.

Multimedia is the ability to work with different forms of information on a computer: color graphics, dynamic effects in text and graphics, sound output and synthesized music, animation, as well as full-length video clips, and even videos.

The practical mode of operation of multimedia is a hardware-software environment, which is the input, processing, storage, transmission of information to a computer and the delivery of text, drawings, video, sound and speech to a person in a necessary and convenient way [1].



Picture-1. Multimedia elements

A multimedia product is an interactive, computer-generated product that can play music, include video clips, animations, a gallery of pictures and slides, various databases, and more.

Multimedia technology can transmit information in a combination of many forms (including speech, pictures, drawings, images, music, numbers, and letters) that can be understood by a person at the same time.

This technology can search, copy and copy information to any other computer in the specified form, and create any combination of them. In addition, multimedia technology allows the user to design himself, as well as create static (still) and dynamic (moving) images, and distribute the results of his creative work to the external environment through communication channels.

The rapid development of multimedia systems was due to the expansion of the capabilities of personal computers and the development of hardware and software. In recent years, the speed of the computer and the capacity of the memory devices have increased dramatically, as well as the graphics capabilities have expanded and the technical performance of the external storage devices has improved. The development of multimedia technologies has been greatly contributed by the development of video technology, laser discs, as well as the development of recording techniques and technologies for the production of sound and images. It was also important to create ways to quickly and efficiently change information in order to store and store information compactly (densely) in memory.

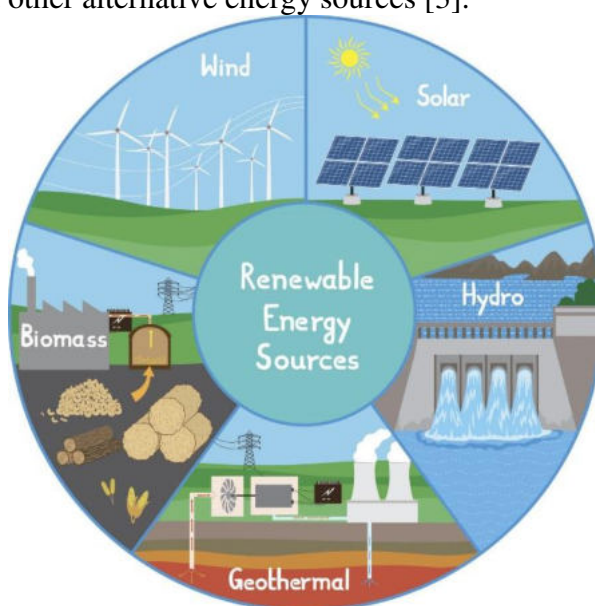
Multimedia tools are a set of hardware and software that allows a person to communicate with a computer using a variety of environments that are natural to him: sound, video, graphics, text, animation, and more [2].

Globally, computer graphics and design are much more advanced. They have been used in practice for a long time. But the main part of all these programs, videos, designs are created for movies, cartoons, websites. The lack of multimedia textbooks on science on special sites, as well as the inability to fully cover the topics of a particular subject, requires the creation and use of modern multimedia software in education.

The use of multimedia software provides a number of benefits for teachers. This is because science-themed audio programs, illustrations, animations (presentations), films made in the form of animations, animations will be interesting news for the reader, attract the reader's attention and increase the effectiveness of education.

In particular, the formation of competencies of students on alternative energy, alternative energy sources and devices, their use in the national economy, the importance of using alternative energy sources in maintaining ecology and environmental cleanliness is an urgent task.

It should be noted that there are non-renewable and renewable (alternative) energy sources in nature. Non-renewable energy sources include oil, coal, natural gas and radioactive fuels from nuclear power plants. Examples of renewable (alternative) energy sources are solar energy, wind energy, running water energy, biogas, geothermal energy and other alternative energy sources [3].



Picture-2. Renewable (alternative) energy sources.

The use of multimedia software in the process of alternative energy education, ie e-textbooks, e-problem sets, e-learning materials, virtual laboratory stands, 3D animations, e-learning simulators and computer control systems, significantly increase the motivation of students and the quality of education serves.

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