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THE ROLE OF INFORMATION TECHNOLOGIES IN TEACHING PHYSICS

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Abstract. The organization of interesting, useful and effective lessons through information and communication technologies depends on the creativity and initiative of teachers. The teacher must teach students to acquire knowledge by analyzing Internet messages and sources, and ensure that the student does not just hear and see in the educational process, but also becomes an active participant in studying the subject and content of the lesson. If the teacher can master information and communication technologies in physics and introduce them into his pedagogical activities, he will be able to ensure the quality and effectiveness of the lesson.

Keywords: experiment, independent work, distance learning technology, pedagogy? Information technology.

INTRODUCTION.

Nowadays, the use of modern information and communication technologies is of great importance in the reforms being carried out in our republic, in the democratization and renewal of our society, in the improvement and reform of the modern image of our country. Based on this, the main tasks are to form a national informatization system in the field of information and communication technologies in our republic, to mass introduction and use of modern information technologies, computer equipment and telecommunications in all advanced spheres of public life and management, to fully satisfy the information needs of citizens and to expand the possibilities of connecting to world information resources. The main task of teaching students the optics department of physics in higher educational institutions is to form skills in students about the properties of light and the processes of interaction with various substances. Today, a lot of literature has been published on the optics department of physics. These publications present theoretical lectures and practical exercises on the propagation of light in media, its interaction with matter, and the observation of nonlinear optical effects in various media [1-3].

Research methodology.

Education based on information and communication technologies, in turn, consists of methods such as teaching using computer programs, distance learning, teaching based on Internet networks, and media education. A lesson organized through information and communication technologies develops in students activities such as analysis, logical thinking, independent decision-making, working in groups or teams, and language learning.

information and communication technologies (electronic textbooks, educational films, virtual laboratory work) in physics creates a basis for increasing the effectiveness of lessons. Educational films are distinguished by their demonstration. They provide a wide opportunity to demonstrate physical phenomena and processes that are impossible to demonstrate in the classroom, as well as machines and mechanisms created on the basis of physical laws [4].

The advantage of using electronic textbooks is that there is an opportunity to explain a new topic, ask questions and problems to reinforce the topic, and perform demonstration experiments in the absence of equipment during the lesson using animation. Since physics is a science that relies on practical experiments, the demonstration of each topic based on experiments undoubtedly increases efficiency.

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Today, the effective use of information and communication technologies in the education system in our country is one of the pressing issues. The main goal of introducing information and communication technologies into the educational process is to create a modern information environment in the education system and introduce new types of education. Information and communication technologies have a great impact on the development of theoretical and creative thinking of students, and they also provide a figurative representation of a particular phenomenon or process in the student's memory, helping to master it scientifically.

General physics chair actually experimental physics course to say more correct would be . Because , from physics in lectures also to experiments big place is given . In physics every one rule experimental proof from what he found only later law , principle and rule right Students will receive from physics laboratory in training their activities physics chair teaching process the most important and effective part organization For this reason , the laboratory their training correct organization to do it develop to the problems related issues working exit physics in education very big importance [5] .

Laboratory training methodology working exit difficulty, its many componentiality , complex to the character He is in possession of many in terms of every kind High training in their homeland there is laboratories different at the level technician availability , expertise direction , training take to go methodology , computers where at the level being used and taken experimental the results analysis to do level , experiment to transfer students readiness check methods , report shape and etc..

Physics science in learning laboratory their work to perform important place occupies . Laboratory their work to perform according to training during students own knowledge increases, received theoretical knowledge reinforcements, physics main concepts and laws deep rock understanding and realizing to take achievements , experimental issues solution qualifications and skills harvest to do , physics tool and devices , as well as measurement tools with to work , to observe and experience the results working exit skills harvest they do necessary . In this new information from technologies using teaching good results gives . Such education styles working exit knowledge to the theory , methodology of the science being studied , knowledge process psychology , teaching didactic to the processes and person upbringing and of formation pedagogical to the basics relies on .

In physics education, the knowledge gained through laboratory experiments has a great importance in terms of its didactic properties. These opportunities should be widely used, especially at higher education levels.

Educational laboratory experiments allow students to learn [6]:

- main physical events and their laws with experimental acquaintance ;
- general physics of the course all main in the departments physical sizes measurement styles study;
- modern measurement tools with acquaintance;
- measurement the results mathematics working exit styles with acquaintance;
- in the experiment and his/her the results working on the way out from the computer use .

Physical of the experiment three main stage showing transition possible:

1. Research purpose to determine ;
2. Research style and him/her done increase the ways selection;
3. Obtained the results mathematical in methods calculating exit

Computer systems equipped with multimedia devices and programs, as well as interactive whiteboards, are gradually becoming universal teaching or information tools in human activities and in all fields of knowledge. Personal computers with multimedia boards are becoming universal

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teachers and information tools in almost all fields. Information and communication technologies expand the possibilities of the teacher in introducing students to an interesting world, where students independently search for information, download it using a computer, analyze it and convey it to others. Teaching students to work with information and read is an important task of modern education. Electronic presentations consist of several slides prepared on a personal computer on a specific topic. To display them, a computer and, if possible, a projector are needed.

Presentations have several advantages:

-allows students to access more information beyond the textbook;

-creates conditions for students to fully understand the topic presented;

-animations, photos, and videos help students visually understand how physical processes occur;

-makes students interested in the lesson, ensuring that they master the subject gradually;

-The topic covered can be reinforced by repeating the slides over and over again.

In addition, electronic presentations can be processed by the teacher at his own discretion, making changes and additions to them. Presentations are aimed at students' auditory and visual perception of information and are a means of demonstration. The advent of Internet technologies has changed the situation that has remained unchanged for several centuries. This was manifested in the replacement of ordinary correspondence with e-mail, and libraries with websites. Now, instead of traditional forms of education in the education system, elements of distance learning in the web environment have entered.

Distance education - an information and educational environment consists of a systematic and organizational set of data transmission tools, information resources, communication protocols, hardware programs and organizational and methodological support designed to meet the educational needs of users. Distance education is a set of information technologies that provide students with the main volume of the material being studied, interactive interaction between students and teachers during the learning process, allowing students to work independently on the independent mastery of the material being taught, and assessing the knowledge and skills they have acquired during the learning process. Virtual training laboratory according to scientific - methodological of affairs existing ones also mainly virtual tool and them laboratory in training of application lighting with limited , but our in our opinion , virtual training in the laboratory only virtual tools not , maybe virtual teaching mothers technician objects project , mathematics and interaction modeling systems , practical programs training and working release packages own inside The virtual learning laboratory itself can be used not only in laboratory classes, but also in students' course and diploma projects, and in educational and research work. "Virtual" the concept of " laboratory " essence structural part was virtual tool using (simple electronic tool with as if working) on the computer work opportunity giving , simple to the computer additional made hardware and programmed tools set from expressing An important part of a virtual tool and a virtual laboratory is a software tool with an effective graphical user interface (i.e., providing a convenient, interactive mode of user interaction with the computer), a graphical menu system in the form of visual graphic examples in a typical subject area. Training virtual laboratory - this completed programmed product is , its to oneself characteristic x automated and design efficiency to increase directed big programmed systems design modern from concepts use is considered . Methodological in terms of virtual laboratories artificial intellect in systems acceptance made process , declarative and hybrid systems to the types based knowledge to give , to imagine from models come to go out , to group possible .

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Virtual training in the laboratory practical process basis practical programs training package or their industry analogues organization . When creating them, the main attention is usually paid to mathematical modeling, optimization of the studied process or objects, and computational work. In order to eliminate problems in the use of information technologies in the teaching process of physics , it is necessary to create conditions for teachers to work independently, prepare for training; widely promote information technologies prepared by innovative teachers in each subject area and used in training, and provide teachers with an individual approach to the subjects they teach during their professional development. Teachers also made a number of proposals to increase the effectiveness of the use of information technologies at the stages of education. In particular:

1. Enriching the coverage of scientific topics with new scientific information and data;
2. To ensure effective student learning, constantly engage students in dialogue during the lesson, ask them problematic questions, and use visual, graphic, and organized materials;
3. Lecture, practical and laboratory rooms equipping with information and communication technology tools necessary ;
4. Innovative education technologies material and technical supply by 100% to deliver ;
5. In teaching physics different holistic application of technologies with to fill , to force can be counterproductive . Using animation, graphics, videos, and presentations and developing them against a relevant background to the goal appropriate to be and good results in;
6. Material - technician base training developments, slides, virtual demonstration and laboratory from experiments use;
7. All teachers innovative education technologies about concepts further based on new information enrichment need ;
9. All education stages modern education process efficiency increase for necessary was devices and with equipment equip necessary, auditoriums: computer , projectors , electronic boards and laboratory devices with equipped , with internet provided to be necessary ;
10. Modern equipment with equip and to provide ;

Conclusion.

The effectiveness of using information technologies in education has been proven by experience and cannot be abandoned, so it is necessary to overcome the above obstacles that arise in it with the help of scientific research and experiments. A lot of work is being done in our Republic in this regard. The correct selection of pedagogical personnel, their good knowledge of their subject, and their being armed with information technologies is the demand of the time. Of course, thanks to our ongoing efforts, we will achieve the training of young specialists, as our President put it, highly intellectual, competitive specialists.

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