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ORGANIZATION AND CONDUCT OF LABORATORY WORK IN PHYSICS INTEGRATED IN VIRTUAL FORMS

Abstract: *this article reflects on laboratory work in physics, demonstration experiments, methods of organizing and conducting solution of issues in the process of remote skill development in natural and virtual forms*

Keywords: *virtual form, Multimedia, self-control, integrated, demonstration-experiments.*

Since physics is an experimental science based on practical experiments, the theoretical knowledge of it can be carefully mastered only on the basis of conducting relevant demonstration experiments, performing laboratory work and solving issues. Therefore, in teaching physics, the organization and conduct of laboratory work, demonstration experiments, solution of issues in order to strengthen, deepen, expand and associate this knowledge with practice, while giving students theoretical knowledge, are considered important components of the educational process. As a result of the fact that the purpose, tasks and content of teaching physics are expanding with the passage of periods, its forms and methods are also improving. Including, now it is becoming known that it is necessary to make some changes to the form, methods of teaching physics in the process of improving their distance skills, as opposed to the form, methods of teaching physics teachers in the traditional process of improving their skills.

In the course of the studies carried out, we came to the conclusion that if a way is chosen to organize and conduct laboratory work, demonstration experiments, solution of issues in a natural state - teachers do not know how to use modern methods, if a way is chosen to organize and conduct the training of these classes in modern virtual forms - then teachers are. In our opinion, the solution of laboratory work, demonstration-experiments, issues in the conditions of distance learning is calculated from the ways to achieve the effectiveness that teachers are envisaged to organize parallel training in both methods, that is, both in natural methods (during contact sessions) and in virtual forms.

The organization and conduct of laboratory work, demonstration-experiments, training in natural and virtual forms of solving issues is carried out in the following two different ways:

the first, in its natural form - is carried out in the auditoriums of training institutions in contact-session Sessions;

the second, in virtual form - distance qualification course was carried out in the process of independent study and creative tasks through the network on the educational portal.

In the process of distance learning, the following 5 methods of teaching physics in the process of laboratory work, demonstration experiments, integrated solution of issues in natural and virtual forms have been developed:

first-study of theoretical materials of training;

second-learning classes in the form of video cards (in the form of synchronous and asynchronous demonstration);

third - practical execution of classes in virtual form and calculation of their results, drawing appropriate conclusions;

fourth-control of acquired knowledge in training, self-control;

fifth-to receive consultations from a tutor or other colleagues in the process of training and discuss the implementation of experiments.

As an example of the above training, let's take a closer look at the training of laboratory work in virtual form.

The theoretical part of the laboratory work provides the process of studying the theoretical materials of the performance of laboratory work and reveals the content of information related to scientific and theoretical issues in order to strengthen their knowledge after performing the work, the necessary equipment for the performance of the laboratory work, the purpose of the work, the procedure and stages of Data can be provided in text, graphic and Multimedia.

Visually in the form of Video lesson, the purpose of laboratory work, the necessary equipment, the procedure for performing the work are introduced. In particular, the purpose of this laboratory work is to learn to determine the acceleration of a body moving flat accelerating by measuring the path and time of movement of a ball rolling from an oblique rod, the necessary equipment consists of a metal trough, a steel ball, a tripod, a metal cylinder, a measuring tape, stopwatch, in the order of, the balloon released from the upper end of the rod is displayed by performing the work in an automated way, arguing that the time spent going to the cylinder at the lower end of the rod and until it is hit must be measured using a stopwatch. This helps to develop the necessary knowledge and skills of teachers in order to independently carry out laboratory work.

Synchronous teaching was also used along with asynchronous teaching when organizing and conducting classes in natural and virtual forms in the conditions of distance training of physics teachers.

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