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Methods of Using Educational Methods in Teaching Physics to Future Engineers

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Abstract: *In this article, the methods of effective use of the methods of teaching physics to future engineers in higher education institutions are discussed. In addition, potential engineers have been shown ways of developing their professional activities such as design, construction, through the use of educational methods in lectures, practical, laboratory and practical training.*

Keywords: *method, specific situations, physical experiment, cognitive activity.*

A rare interactive form of conducting classes is a ttshled lecture with pre-planned errors (lecture-provocation), designed to quickly analyze students ' professional situations, develop skills to act as experts, opponents, reviewers, and formulate a critical attitude towards the information provided [3].

In a lecture that analyzes specific situations, the audience is presented with a specific situation either by demonstrating verbal or physical experience, or in a very short video session. Its presentation should be very short on the one hand and contain enough information on the other hand to assess the proposed phenomenon [4].

When conducting such lectures on physics, it is advisable to first demonstrate a certain physical experiment without explaining its essence, and then, in the process of discussion with the audience, bring them to the correct conclusion with the help of leading questions.

When conducting a lecture, students are offered to ask questions in writing to the teacher on this topic. Questions are formed 2-3 minutes after the topic is published, then the teacher sorts the questions by their semantic content for 3-5 minutes, and only then begins to lecture [3]. It should be noted that the tshiiter does not answer specific questions and tshtezes the subject, which forms the appropriate answers, in the form of a consistent, logical development. At the end of the lecture, the teacher conducts the final assessment of questions as a reflection of the knowledge and interests of the audience.

The involvement of students in cognitive activity in the lecture is achieved by the need to correctly formulate a question that activates thought processes and concentrate the student's attention on waiting for an answer to the question. The experience of participating in the lecture allows students not only to ask questions, but also to give them a clear and competent answer, find a way out of difficult situations that arise during communication, form skills to prove and reject a certain point of view, and be resistant to the opinions of others [5].

According to the state educational standard (DTS), "in active and interactive forms, the lesson ratio, the main purpose (mission) of the program, the student contingent and the content of specific subjects, usually in the educational process they should be at least 20 percent. Lecture-type classes cannot make up more than 40% of audience classes"[1]. So, the time of training sessions, which are carried out in active and interactive forms, is officially regulated.

Telegram, Facebook, lnstagram (Telegram, Facebook, Instagram) are advisable to use social networks to organize active work on lecture materials. Group moderators are appointed from among group Students.

Thus, we can save time in the audience and move work on theoretical material to extracurricular time and focus on the most complex and important points of the topic under study. In addition, this form of presentation of educational material makes it possible to implement an individual and differentiated approach to the teaching of bachelors, that is, the student can see many times the material of the lecture, which is necessary for a comfortable perception of the subject.

Practical training can also be organized in an active form. These include:

The design method is"an educational system in which students acquire knowledge and skills in the process of independently planned and gradually performing more complex practical tasks."

In the project method, it is possible to consider complex research, design, graphics and other types of work carried out by tadabas independently, but under the guidance of a teacher, in order to solve an important problem in a practical or theoretical way [4].

It should be noted that the design method refers to both active and interactive educational methods.

Portfolio is the technology of working with the results of students ' educational activities or "a set of works for which students are assessed at a certain time in terms of professional development or compliance with the curriculum" [5].

The game method is an active form of student joint activity when recreating a system of relationships that allows you to "transfer from passive state – knowledge – activity – activity to skill", and not the level of knowledge of certain practical situations or the level of training of students [4].

Training is a complex of various exercises and games combined with each other on a topic in a particular system, which allows students to develop an active social pose with others, effective cooperation, the formation of new professional knowledge, skills and qualifications.

Keys-technology-it is characterized by the uncertainty that arises in the professional field, and is itshllan in the analysis of specific practical situations.

After conducting access control, which allows you to check the level of assimilation of the theoretical material presented in the report, students are offered to solve physical issues at an individual pace (individually and in pairs), analyzing or not analyzing the correct solutions on the board. At the end of the practical lesson, the current quality control of the educational material is organized using differentiated tasks, and the higher the level of complexity, the more logical operas must be performed to solve this physical issue, and the choice of the level of complexity is independent and optional for students. [6].

Interactive learning is a little different from others, let's take a closer look at these differences and what interactive learning is.

In Intarfaol training courses, teachers preferred to provide teaching materials using interactive teaching methods or computer presentations using an interactive whiteboard (around 86%).

Interactive (interaction-interaction) is understood as teaching methods based on the interaction of students within a given group.

Interactive education - " learning based on the interaction of the student with the learning environment, the learning environment that serves as an area of learning experience "or"

understood as a joint educational process in which knowledge is obtained in joint activities through communication " [2].

In the psychological theory of teaching, interactive education is based on the psychology of human relations. Interactive educational technologies as subjects of educational activities are considered as ways of obtaining knowledge, skills and skills formation in the process of interaction between a teacher and a student. "The essence of interactive education is that it is based not only on the processes of perception, memory and attention, but primarily on creative thinking, behavior and communication" [2].

"Mental attack "is when team members ask questions to the author of an idea, with examples and confrontations being a collective way to solve a problem. The teacher creates problematic situations during the lesson. In the process of discussing them, students participate in the problem solving activist" [1].

The synectic method is a method of attracting comparisons and comparisons, an improved method of producing ideas that require a person's breadth of thought, the completeness of his imagination, and an inexhaustible imagination. The method involves teaching in operatic mechanisms that focus on analogy and the use of metaphors.

The result of the use of the Keys method develops not only knowledge, but also professional skills aimed at the formation of professional competence.

Thus, the student must, firstly, be guided and partially reflected in the variety of options for conducting an educational discussion, and secondly, know the peculiarities of the methods of its conduct.

From the above, it can be concluded that the process of preparing and conducting an educational discussion takes a lot of time for students and teachers. Consequently, this does not correspond to a decrease in the duration of the undergraduate curriculum in relation to the specialty, as well as a decrease in the time spent on studying individual subjects and compactness of educational information

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