

## METHODS AND FORMS OF TEACHING TECHNICAL SCIENCES

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**Annotation:** *This article examines the importance of using modern technologies and teaching methods in teaching students and masters of technical universities. The structure of the student audience, analysis of the structure and the choice of teaching method.*

**Keywords:** *Methods, forms, perception, training system, audience structure.*

## МЕТОДЫ И ФОРМЫ ОБУЧЕНИЯ ТЕХНИЧЕСКИМ НАУКАМ

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**Аннотация:** *В данной статье рассматривается важность использования современных технологий и методов обучения в обучении студентов и магистров технических вузов. Структура студенческой аудитории, анализ структуры и выбор метода обучения.*

**Ключевые слова:** *Методы, формы, восприятие, система обучения, структура аудитории*

## TEXNIKA FANLARNI O'QITISH USULLARI VA SHAKLLARI

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**Annotatsiya:** *Ushbu maqolada texnik oliy o'quv yurtlari talabalari va magistrilarini o'qitishda zamonaviy texnologiyalar va o'qitish usullaridan foydalanishning ahamiyati ko'rib chiqiladi. Talabalar auditoriyasining tuzilishi, tuzilishini tahlil qilish va o'qitish usulini tanlash.*

**Kalit so'zlar:** *Usullar, shakllar, idrok etish, o'qitish tizimi, auditoriya tuzilishi.*

## INTRODUCTION

As in all humanitarian, exact and linguistic disciplines, so in technical

disciplines there are methods, forms, sequences of teaching special technical subjects to students.

As you know, in the age of modern technology, all areas of education require the use of technology, which is reasonable, because it has been scientifically proven that when using visual technologies in conjunction with auditory, a high percentage of the received information is remembered if only aural perception.

And when using psychological games and influences, along with the perception of information, the interest and amount of students also increase. The maximum number of students is involved.

Methodology, as a doctrine of teaching and upbringing methods, is the part of the education and training general theory, which develops the whole complex of issues of content, methods and forms of teaching. The teaching methods are:

- methods of the teacher teaching work and organization of students educational activities;
- A way of the teacher and students interconnected activity;
- A way of organizing the students cognitive activity.

At present, a constant change in priorities is associated with the emerging modern post- industrial society, which is interested in the citizens of this society being able to act independently, actively make decisions, and be able to adapt to rapidly changing living conditions, which led to a new educational paradigm and a change in educational standards.

The education system and curriculum of our state makes it possible for students to study at higher educational institutions in the bachelor's and master's programs, and if the bachelor's degree makes it possible to prepare a future manager in accordance with the framework of general basic requirements, then the master's program significantly increases their professionalism and makes it possible to form a personality who is capable not only to teach specialized disciplines, but also to carry out professional

activities in conditions that take into account the modern realities of the formation of an information post-industrial society.

The main requirement for a graduate of a higher educational institution is the provision of his professional competencies, which is determined by the knowledge accumulation, as well as acquired practical skills and abilities. The formation of a university graduate's creative potential requires changes in the structure and content of these educational programs, the use of new methods and technologies, as well as new evaluation criteria for both students and applicants.

At the same time, the magistracy will be able to function properly only in conditions favorable for the development of scientific research. Ensuring the high quality of master's training forces the restructuring of the entire educational process in the direction of "learning through research".

The social needs of society in relation to education have changed. In a modern marginal society, it is necessary to form a person capable of creative, conscious, and most importantly, independent determination of his activity, self-discipline and self-regulation, which ensure the achievement of this goal. But in this case, the problem is that the system of state and municipal government in many respects does not contribute either to the development of employees creative thinking or the implementation of innovations into their activities.

To solve such problems, a special approach to teaching students is required - a competency-based approach, which involves changing the nature of the educational process, turning it into cooperation that ensures the democratization of the teacher's position with the simultaneous active involvement of students in creative, cooperative and productive activities.

The traditional method involves communication between the teacher and the student, constant monitoring by the teacher of the student's educational activities, control of the assimilation of educational material. In other words, the effectiveness of this dialogue depends on the correct solution of the

objectives by the teacher:

- Setting a learning goal and the resulting motivation for the student;
- Implementation of the transfer of material (lectures) and its correct presentation for students (practical exercises). At the same time, the teacher decides the function of methodological study of educational material;
- Control of knowledge gained by students.

The competence-based approach is a set of general principles for defining the goals of education, selecting the content of education, organizing the educational process and evaluating educational results.

There are basic teaching methods that can be classified according to the degree of subject's participation of the educational process in the creation of educational material:

- The academic method, which assumes that knowledge and skills are transferred from the teacher to the students in a ready-to-use form;
- An active method based on the "procurement" of knowledge through the student's independent work;
- An interactive method in which the obtainment of new knowledge occurs through the joint work of the participants in the cognitive process, the teacher and the student.

In the current conditions, teaching should combine the directive and modern, exactly innovative, interactive learning models developed by practice.

Interactive teaching methods are the ways and means of teaching that are aimed at active participation and direct involvement in the educational process of the undergraduate student. Such a learning model is aimed at achieving understanding of the transmitted information, and involves a creative rethinking of previously received information, while the process of information transmission itself is built on the principle of interaction. This interaction takes place in the mode of a certain dialogue, which is

conducted, as a rule, between a teacher and a student, or a computer or technological equipment.

Therefore, the interactive method is a dialogue training, within the framework of which interaction with someone or something is carried out. During such training, students learn to think critically, solve complex problems based on an analysis of circumstances and relevant information, consider and discuss alternative opinions and make thoughtful decisions, participate in discussions, communicate with other people.

There are several examples of interactive teaching methods, such as: the method of problem presentment; presentations; discussions; case study; collective work in groups; method of critical thinking; brainstorming method; quizzes; mini-studies; blitz survey method; survey method and many others.

The ultimate goal of using pedagogical technologies in the educational process in higher educational institutions is to create conditions for the formation and development of a student not only as a specialist in a certain professional activity, but also as a person with the ability to critically comprehend problems, make decisions from a number of alternatives and on the basis of creative search, the ability for proper cultural and business communication.

In conclusion, I would like to note that, in my opinion, any pedagogical technology cannot replace live, emotional communication, and its development and practical application require the highest creative activity from the teacher and student, which directly depends on the individual human qualities of both subjects.

### **PROBLEMS OF TEACHING TECHNICAL DISCIPLINES**

The development of the country depends on the development of a competitive industry. It is known (in particular, taking into account world experience) that the strength and economic power of the country, the attitude towards it primarily depends on the level of its scientific and technological development. Scientific and technological development, in turn, presupposes the availability

of professional engineering personnel and workers.

In solving this problem, the most important role is played by the training of specialists for the system of vocational technological education. However, the approach to the training of such specialists in universities by the supporters of "purely pedagogical" and "purely technical" education differs significantly.

A specialist in vocational technological education must have knowledge not only of the pedagogical, but also of the engineering and technical field. According to the teacher who teaches the future specialist, he must be an expert in the branch of science to which the discipline belongs. Or, if he is a professional teacher, to have a deep knowledge of the science to which the subject of the material being presented belongs.

When teaching special subjects, it should be important to require knowledge of the science itself, which is taught in this discipline.

- For effective mutual understanding between students and the teacher, the teacher must know the psychological structure of the student audience. After all, each student group is divided into informal subgroups according to certain interests and has its own informal leaders. It is advisable for the teacher to know them and be able to interact with them. In addition, a student as a person has his own psychological structure, the main components of which are orientation, capabilities, character, temperament.

At the same time, the teacher must take into account the temperament of the student, his level of general education and upbringing, the ability to creative search and other factors. According to these aspects, the teacher establishes his relationship with students and organizes classroom work. In order to improve pedagogical skills, it is desirable for the teacher to study the forms and methods of conducting classes by other lecturers, to diversify the ways of business contacts with the audience.

The teacher, as the organizer of the educational environment, must provide the necessary conditions for the educational process so that students have the opportunity to study rhythmically and independently, constantly updating their

knowledge. It is desirable to constantly study the needs of students, their aspirations and motives for activity. You can study public opinion in the process of conducting classroom studies in the following ways: observation (notice positive remarks, reviews, negative emotions, distraction from classes, the presence of students' questions); questionnaires (recommended to conduct at the beginning, inside and after the end of the course).

At the same time, it is advisable to determine the views of students on the following issues: compliance of the educational material with the subject of the course; the importance of discipline in professional training; the nature of the presentation of the material (logic, pace, emotionality, definition of the main issues); general characteristics of the teacher's personality (erudition, goodwill, culture of speech, etc.).

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