USE OF TEACHING METHODS IN TEACHING THE TOPIC OF MECHANICAL TRANSMISSIONS

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Abstract. This article discusses the effective use of interactive teaching methods in teaching the topic of "Mechanical Transmissions" in technical higher education institutions and vocational education systems. The topic of mechanical transmissions requires students not only to acquire theoretical knowledge, but also to develop practical thinking, constructive analysis, and technical calculation skills. Therefore, it is important not to limit the teaching of this topic to the traditional lecture method, but to use modern interactive methods. The article analyzes the ways of applying such methods as "Group Work," "Problem-Based Learning," "Conceptual Table," and "T-Chart," as well as their effectiveness.

Keywords: mechanical transmissions, interactive education, gear transmission, belt transmission, chain transmission, educational technology, engineering education.

Today, one of the urgent tasks is to train competitive specialists with independent thinking and practical skills in the field of technology. Especially for students studying machine-building, mechanics, and engineering, the topic of "Mechanical Transmissions" is of great importance.

Mechanical transmissions are used in machines and mechanisms to transfer motion, rotational speed, and power from one shaft to another. The use of interactive teaching methods in this topic gives high efficiency in increasing students' interest and strengthening their knowledge.

Any education process reflects the activity of both the teacher and the student, that is, the teacher's teaching activity and the student's learning activity, in other words, a direct and relative interaction. One of the important requirements for

organizing modern education is achieving high results in a short time without excessive mental and physical effort.

The use of interactive educational technologies in teaching technical subjects is one of the urgent issues of today, as it helps achieve high results in a short time, effectively apply modern pedagogical technologies, and ultimately train qualified specialists. Let us consider the effective types of interactive teaching methods in teaching the topic of mechanical transmissions.

“Group Work” Method

Students are divided into three groups:

1) Group 1 – Gear transmissions
2) Group 2 – Belt transmissions
3) Group 3 – Chain transmissions

Each group analyzes the following:

1. Advantages
2. Disadvantages
3. Fields of application
4. Technical parameters

Then they present their results.

“Problem-Based Learning” Method

Question:

Why are gear transmissions used in machine tools requiring high precision?

After discussion, students come to the following conclusions:

1. No slipping
2. Constant transmission ratio
3. High reliability
4. Accurate motion transfer

“Conceptual Table” Method

The conceptual table can be effectively used in teaching the topic of "Mechanical Transmissions." In this case, the specific features of different transmission types are well remembered by students.

Mechanical Transmission	Types	Structure	Shaft Arrangement	Application
Gear transmission	Spur gear, bevel gear	Gear wheel	Parallel, intersecting shafts	Gearboxes, reducers
Worm transmission	Cylindrical, Archimedean, globoid worm	Worm wheel, worm	Crossed shafts	Lifting devices, reducers
Belt transmission	Flat, V-belt, toothed, circular belt	Belt, pulleys	Parallel shafts	Internal combustion engines,
Screw transmission	Screw-nut, helical gear	Helical gears	Intersecting/crossed	Engines, jacks, lifting devices

"T-Chart" Method

This chart can also be used in teaching the topic of "Mechanical Transmissions." With the help of this chart, students can study the advantages and disadvantages of transmissions, as well as compare two types of transmissions studied in the topic. This strengthens students' thinking, comparison, and analytical skills.

Results of Interactive Methods

Based on practical experience, the following results were observed:

1. Increased classroom participation
2. Improved understanding of technical terminology

3. Developed independent thinking
4. Strengthened problem-solving skills in calculations
5. Increased interest in the subject

Thus, interactive educational technologies and interactive methods, which are their important structural element, ensure positive changes in the organization of the educational process. Modern education constantly requires updating its goals, content, forms, methods, and tools in connection with the development of science and technology.

Moreover, the demands placed on improving the activities of educational institutions are steadily increasing. This, in turn, requires the consistent introduction of advanced teaching systems, including interactive educational technologies and methods.

The use of interactive teaching methods in teaching the topic of “Mechanical Transmissions” is an important factor in deepening students’ theoretical knowledge, developing practical skills, and forming independent thinking. In particular, the methods of “Group Work,” “Problem-Based Learning,” “Conceptual Table,” and “T-Chart” are highly effective in mastering this topic.

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