

# SCIENTIFIC AND THEORETICAL BASIS OF TEACHING THE PART "MECHANICS" OF PHYSICS BASED ON INTERACTIVE TECHNOLOGIES

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**Abstract.** *The article discusses the issues of teaching the mechanics department of physics on the basis of interactive technology in higher education. Teaching using interactive technologies is used in the teaching of many subjects in various branches of education. At present, in many developed countries of the world, great importance is attached to interactive teaching technologies, and researches are being conducted in this field.*

**Keywords:** *physics, mechanics, student, teacher, activity, educational process, interactive technologies, creativity, theory, practice.*

In the field of pedagogy, the amount of research aimed at the application of innovative methods of improving the systematic, traditional and non-traditional teaching methods of physics education, the development of professional competences of students, and the improvement of professional and pedagogical creativity of students is increasing. One of the urgent tasks is to effectively use innovative methods in the teaching of the part "Mechanics" of physics, to expand its didactic and methodical possibilities, to develop the creative thinking of students due to the continuity and practical orientation of physics education in higher education institutions, and to develop mechanisms for using new software tools in the formation of professional competences. Current problems of teaching physics are reflected in the researches of M.Djoraev, K.Tursunmetov, M.Qurbanov, G.Karlibaeva, P.Jalolova and others.

By analyzing the scientific and research works, the literature, teaching the "Mechanics" department of physics based on interactive technologies, developing the improvement mechanism based on today's innovative development trends, the formation of thinking through the wide introduction of experimental methods of education in the teaching and training of students, the visualization of mechanical processes problems of forming mental activity methods and skills in laboratory training were analyzed.

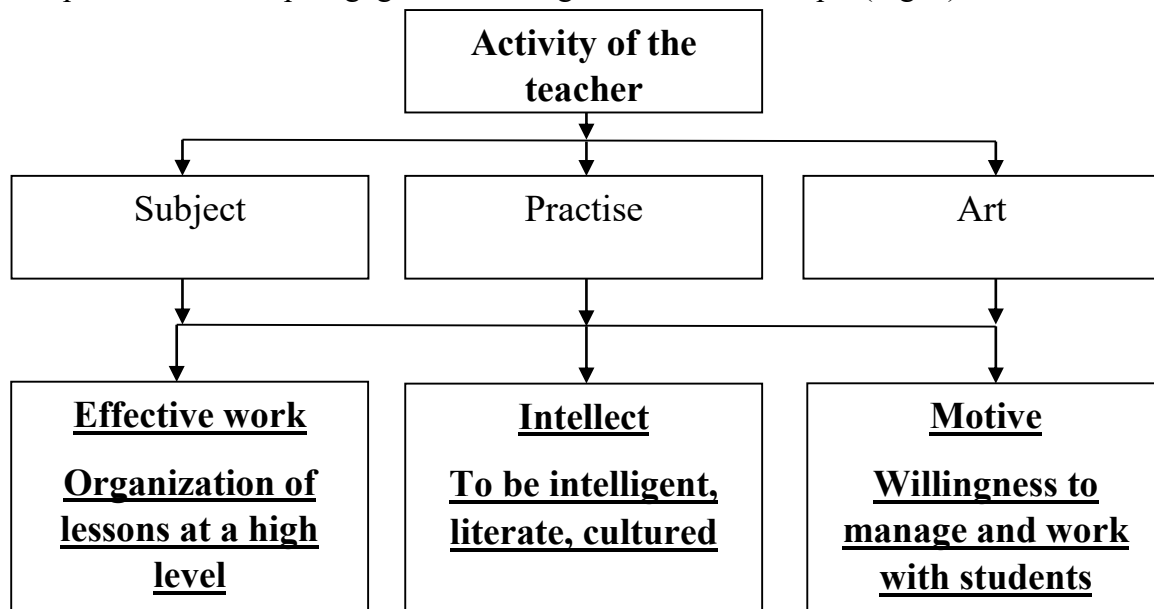
Improving the teaching of the "Mechanics" department of physics on the basis of interactive technologies is determined based on the educational goals in the selection of methods, forms and technical means of teaching the subject of physics. Therefore, the improvement of the teaching of the topics of the "Mechanics" department of physics is developed through didactic factors such as the vital reflection of physical processes in the minds of students by summarizing the essence of the mathematical relationship and connection of mechanical phenomena, laws and formulas.

As a result of the analysis, it is appropriate to include the following recommendations in the process related to interactivity in the methodological and pedagogical activity of the professor:

- continuous improvement of skills of working on paradigms related to "Mechanics" department of physics, independent education;

- rapid and high-quality retraining when necessary, mastering modern pedagogical technologies, interactive methods of teaching, critical thinking;
- to develop the skills of mastering professional qualities, effective teaching and training, and the ability to fairly evaluate theoretical knowledge;
- able to find its place in rapidly changing socio-economic conditions;
- engaged in scientific and pedagogical research throughout his professional career.

Thus, a modern teacher is the creator of the future, the author, developer, researcher, user and promoter of new pedagogical technologies, theories, concepts (Fig. 1).



*1-figure. Activity of the teacher*

It is also important that the student himself is ready to develop physical knowledge and skills. There are different ways of forming physical knowledge: taking into account the individual characteristics of a person, professional business games, educational competitions, demonstration of the effectiveness of formation and development, and others.

Students with different levels of physical knowledge are admitted to the educational institution. Therefore, it is necessary to take into account the level of formation of physical knowledge in the student during the educational process. the student can further develop his practical knowledge, skills and abilities according to the level of theoretical knowledge of physics he has formed. Pedagogical possibilities for the implementation of the main tasks of teaching physics to students are given in Table 1.

**1-table**

Pedagogical opportunities for students to implement the main tasks of teaching the part Mechanics of physics

Tasks of teaching	Pedagogical opportunities
1. Setting and implementation of learning goals	
<i>Setting and solving educational tasks</i>	Combining intellectual and practical activities in the study of a mechanical object, using the design method, analyzing new theoretical data and planning future work.

	Analysis of problematic assignments performed by students, comparing its size and complexity with their capabilities, determining the goals and objectives of the activity.
<i>Formation of educational activities</i>	Performing physical actions as elements of activity, performing several actions that perform one task and are combined into large blocks - work methods, forms, methods. Implementation of initial, current, intermediate and final self-control, mutual control, self-evaluation during physical actions and solving creative problems.
<i>Formation of referral activities</i>	Analysis of the tasks of physical laws in the effective organization of training, selection of equipment.
<i>Implementation, formation of implementation activities</i>	Making changes to the design and technology of physical data preparation, modeling in physics classes, implementation of design elements, execution of educational projects.
<i>Motivate to study</i>	Exercises (reproductive, task or creative) for students to set goals in their studies. Cooperation with teachers in solving complex problems.
<b>2. Creating innovation in students from physics</b>	
<i>Freedom</i>	Understanding the need for less interesting tasks for students, overcoming difficulties, finding the most effective ways to achieve the goal.
<i>Reflexion</i>	Use of cooperation in training, fair assessment of their abilities and knowledge by students.
<b>3. Formation of personal qualities</b>	
<i>A sense of duty and responsibility</i>	Working in a group and in a team.
<i>Supervision and peer review skills</i>	Cooperative learning activities. Determination of actions requiring mandatory control. Performing creative works and checking them with each other.
<i>Creative activity</i>	Organization of research activities of students. Acquaintance with the essence of the studied physical phenomena. Independent observation and experiments.

	Use of innovative problem-based methods of teaching. Solving problems of maximum difficulty, experiencing failures and self-analysis of the reasons for the difficulty of the problem.
<i>Creative skills</i>	Creating an atmosphere of mutual cooperation, creativity. Organization of teaching based on the principles of interactive education. The presence of positive emotions. Creative problem solving.

In short, the result of teaching is determined not only by the effective activity of the teacher, but also by the activity of students in the educational process. That is why the management of the learning process of students appears as a subject of the teacher's activity.

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