

## USE OF MODERN TECHNOLOGIES IN TEACHING PHYSICS

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**ABSTRACT:** This article discusses use of modern technologies in teaching physics. The material presented divided into topics, which, as a rule, considered in one lecture. The lecture presents the main experimental facts and formulates laws. Simple examples demonstrate their application. For independent work, literature and a list of questions recommended. Testing the results of independent work carried out according to a scheme similar to testing the degree of assimilation of lecture material.

**KEYWORDS:** Modern technologies, teaching physics, topics, rule, lecture, experimental facts, formulates laws, application, independent work, literature, degree of assimilation.

### INTRODUCTION

The change in the structure of higher education in Uzbekistan after joining the Bologna process and the introduction of new educational standards led to the need to change the educational process.

If earlier the main goal of teaching was to fill the student with knowledge and develop the ability to use them, and there was no strict coordination between different academic disciplines, then at the present stage the role of coordination is significantly increasing. The quality of a university graduate determine by the degree of formation of the entire system of professional, general professional and general cultural competencies, reflecting the acquired knowledge, skills and abilities, as well as the personal qualities of graduates.

### THE MAIN FINDINGS AND RESULTS

Each discipline studied contributes to the formation of certain competencies. The course “Physics” solves the problem of forming the professional competence of PC-2, which revealed in the ability to understand, improve and apply modern mathematical apparatus. When checking the formation of competence, the student must know mathematical methods, used for setting and solving problems of the studied sections of physics, be able to determine the adequate mathematical apparatus necessary for solving problems, and master the mathematical methods used in setting and solving problems. Also in this course, the general professional competence of GPC-1 is formed, which implies the ability to use basic knowledge natural sciences, mathematics

and computer science, basic facts, concepts, principles of theories related to applied mathematics. As a result, the formation of competence, the student must know: the concepts, basic laws, and principles that describe physical phenomena, as well as, the consequences arising from these laws and principles that have theoretical and applied significance. They should be able to solve physical problems and problems similar to those previously studied, but are closely related to them, solve physical problems and problems similar to those previously studied, but at a higher level of complexity. Additionally, solve physical problems that require some original thinking, adequately describe physical phenomena, compose and analyze their mathematical models with the involvement of additional educational material.

The student must have an understanding of the current state pictures of the description of physical phenomena, methods of compiling and studying mathematical models and analyzing the results of the study. Here we consider how this problem is solved at the Institute of Information Technology, Mathematics and Mechanics (IITMM). Firstly, we have to take into account that the transition to new education standards accompanied by a change in the terms of education. If earlier five years allotted for the training of specialists, now four years allotted for the training of students, who must have the same fundamental training as specialists. The lack of time can largely be smoothed out due to the specifics of the curricula, the specialization of IITMM and the use of the e-learning system at all stages of the learning process. The Institute of Information Technologies, Mathematics and Mechanics prepares mainly specialists in the development and application of the software product. The need to train highly qualified specialists in this area only increases over time. Therefore, the hours devoted to their specialization cannot be reduced. It is necessary to reduce only the hours intended for the study of subjects of the “classical” natural science block. But, “saving” hours by excluding certain branches of physics is unacceptable, if only because a significant part of students graduates continue their studies in the magistracy, which requires thorough preliminary preparation. Students’ specializations can be divided into two groups: applied mathematics and informatics. The hours allocated for the study of physics can vary significantly between them. To compensate for the negative effect of the difference in time allocated for a block of physical disciplines, when implementing the project method of teaching, groups are formed that perform certain projects in such a way that they include students from both directions.

For each of the topics of lecture or independent work, in case of unsatisfactory test results, the student can undergo additional testing. The results of additional testing given in parallel with the main one. They can take into account at the final stage. Automatic correction of the current assessment facilitates the work of the teacher during the intermediate assessment. This procedure can be repeated until the correct solution for all problems is obtained. After that, the student gets access to take the test for practical exercises. As well as when studying lecture material, the student has the right to two attempts to pass the test, according to the results of which the system automatically determines the degree of formed skills in terms of competence on the topic, and then for the entire course.

Checking the formation of possessions in terms of competence is determined at the final stage of studying the corresponding section of physics. By this time, the students decided on the choice of the scientific direction and the head of the practice and the future topic of the final qualifying work. Received additional literature from the supervisor.

### CONCLUSION

Additional opportunities are open by modern information technologies. Experience has shown that electronic guided courses created in support of the course “Physics” on the Moodle platform contribute to the successful formation of general professional and professional competencies in students. This can be seen especially successfully at the initial and basic stages of the formation of competencies. At these stages, the e-learning system allows, through active student-teacher contact and continuous display of the degree of assimilation of the studied material, to significantly improve the quality of education and relieve the teacher.

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