

## **Modern innovation in the teaching of technical sciences (mechanics) use of educational technologies**

**Isaboyev Sharofiddin Musomiddinovich**

Associate Professor, Namangan Institute of Civil Engineering

[sharafiddin\\_82@gmail.com](mailto:sharafiddin_82@gmail.com)

**Abstract:** This article presents analytical approaches to the advantages of using modern innovative educational technologies in teaching at technical higher educational institutions in foreign countries and the competitiveness of trained specialists.

**Keywords:** advanced teaching methods, innovation, literature, new generation, pedagogical skills.

1. Introduction. In order to fundamentally revise the content of personnel training in accordance with the priority tasks of the socio-economic development of our country, to create the necessary conditions for training teachers with higher education at the level of international standards, the Resolution of the President of the Republic of Uzbekistan No. PQ-2909 “On measures for the further development of the higher education system” dated April 20, 2017 was adopted.

This resolution approved the Program for the Comprehensive Development of the Higher Education System for 2017-2021 to qualitatively increase and radically improve the level of higher education, strengthen and modernize the material and technical base of higher educational institutions, and equip them with modern educational and scientific laboratories and information and communication technologies [1].

This indicates that the main tasks of the teacher in improving the content of education are to prepare educational and visual aids, information, materials for each lesson, to provide students with new knowledge, to explain, demonstrate, demonstrate, pay attention to their various areas, to form their own skills, to use modern innovative educational technologies, to widely use the latest innovations in the field. For example, the equipment necessary for teaching special and general vocational subjects, models, drawing projects, layouts, exhibitions, handouts, cards, questionnaires, instructions, interesting questions and tasks, devices that create various problem situations, and games allow students to better understand this topic.

Thus, “theoretical and practical training, supplementing the content of special subjects studied in this area with new information, providing practical assistance in the development of skills and qualifications for independent work with sources, ensuring the memory, creative abilities, and physical fitness of students”[2]. These further develop the pedagogical foundations of teaching special subjects. As a result

of the development of science and technology, the practical and methodological preparation of the teacher in teaching special subjects serves as an important factor in providing students with in-depth information, increasing the effectiveness of teaching, improving the educational process, and assimilating new information . Because modern innovative educational technologies used by teachers in educational institutions based on the study of special subjects provide information about equipment and materials related to professions, which helps them develop interest in in-depth study of their specialty, as well as develop skills in completing various tasks and finding answers to questions. Modern innovative educational technology in the subject of study is developed based on the following:

The rule of technologicalization of education in an educational institution;

The purpose, structure, content and scope of educational information in science;

, and management that guarantee the achievement of the educational goal at the time and under the given conditions specified by the DTS, specified in the curriculum.

This section of educational technology justifies the relevance of the technologization of education in the context of the intensification of market principles in the economy and the democratization of society, describes the structure of modern innovative educational technology in the field of education, and provides brief descriptions of the educational technology designed for theoretical and practical classes.

## 2. Conceptual foundations of educational technology.

This section of educational technology covers the following:

- the relevance of the subject , its goals and objectives, the total number of classroom hours and their distribution by topic in accordance with the standard program of the subject, and types of work;
- the content of the subject, the subject content of the subject described in accordance with the standard curriculum of the subject;
- the teacher's use of modern innovative teaching technologies in teaching sessions, design and planning, methodological foundations for choosing ways and means of communication, information and management. In the process of teaching special subjects, the teacher provides students with ready-made knowledge, independently overcomes difficulties , and develops initiative, independence and activity in them. It is worth recognizing that if the teacher clearly explains the purpose and task of education to students based on teaching special subjects, they will acquire the skills to solve the problem quickly and easily. In this case, the teacher's provision of complete and accurate information about the subject being studied not only improves

the quality of education, but also helps students effectively and independently master modern educational technologies in their pedagogical activities after graduation.

In the subject of “Mechanics” demonstrate the most important topics in sequence: “Connections and connection reaction forces, Projection of force on the axis, Moment of force about a point, Coupled forces and couple moments, and Conditions for equilibrium of a system of forces located on a plane”. Achieve the scientific basis and necessity of visual aids. When paying attention to the teacher's verbal and visual environment, posters are used on equipment, inventory, technical means, educational visual aids, and curriculum. ( Figure 1)

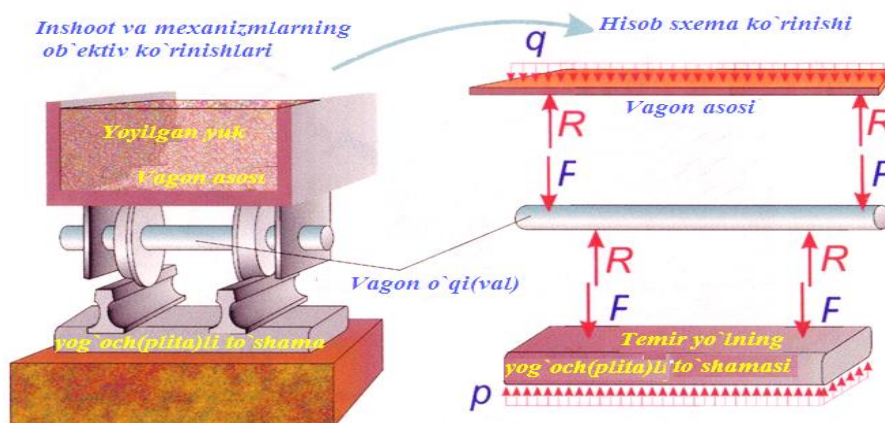


Figure 1

For example, in the process of teaching mechanical subjects in the training of engineers in the direction of agricultural mechanization, the task of the teacher is to ensure that the purpose of the lessons is meaningful and systematic. In the lessons on mechanics taught in this direction, it is advisable for the teacher to conduct lessons based on the experience of foreign countries with modern innovative media technology, educational technologies. In this case, in the process of training engineers graduating from higher educational institutions, the formation of the necessary concepts and tools for this profession in the teaching of mechanical subjects plays an important role in implementing the tasks of the essence and content of the relevant training.

The formation of an engineering environment for human labor and activity in the production and service sectors, information about their types of professions and important aspects - the use of modern innovative educational technologies in teaching subjects related to one's profession helps to achieve significant results.

Theoretical analysis of scientific sources showed that the formation of students' abilities for the profession of a teacher of mechanics directly depends on the innovative activity of the teacher of mechanics and the state of implementation of innovative technologies. In this regard, it is necessary to develop the effectiveness of innovative technologies and their implementation functions, organizational and pedagogical aspects in educational institutions. Because innovative educational

technologies require the implementation of a number of tasks, such as the modernization of educational materials, increasing the cognitive activity of students, the use of interactive teaching methods and the development of tools and methods for controlling their knowledge, the development of independent work skills and the formation of creative thinking [4].

Today, one of the most important tasks of special disciplines in the training of future engineers in the field of technology is to provide them with more information about the issues of ensuring the quality of work in production sectors and to familiarize them with the technology of training for the process of their specialty. Accordingly, special disciplines mean a set of education that prepares students for two professions in a certain order, in a certain direction and forms a whole. From this point of view, mechanical disciplines are important in introducing future engineers to various specialties and equipping them with the methods, methods and techniques of their organization and application.

While teaching students engineering specialties, form a whole in connection with other subjects [5]. In the process of teaching mechanical subjects in various technical areas of higher education institutions, the main goal is to improve the level of knowledge of students, establish independent and creative education, provide information to future engineers, and train them to apply it in practice, while also solving the following tasks:

- in the process of teaching special and general vocational subjects, in the direction of technical education, to provide students with information about the parts of machine mechanisms and elements in buildings and structures, their interacting forces, and to develop skills for practical application in calculation work; (Figure 2)

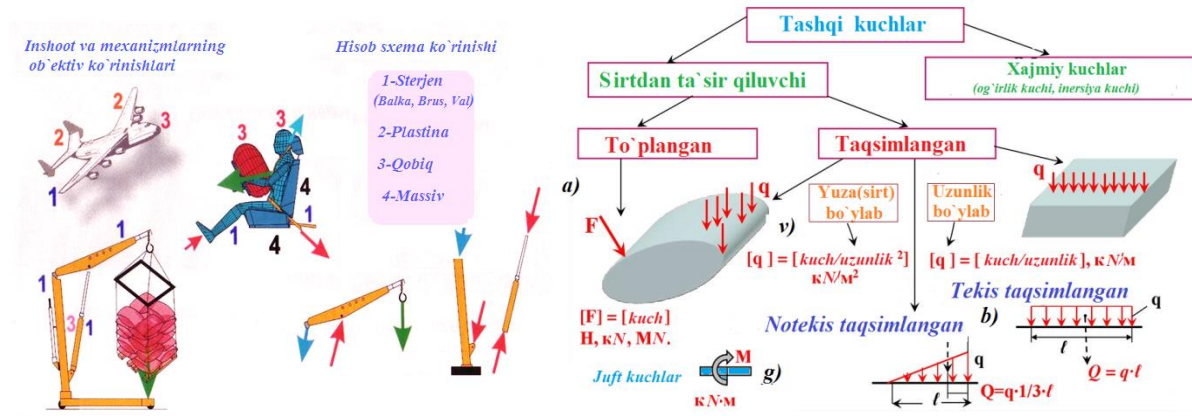


Figure 2

- to develop in students the ability to choose mechanical disciplines and use them rationally for the purpose of ensuring the strength and durability of the building or machine part being studied ;

- to create opportunities for students to fully utilize their interest in technical subjects and their aspirations, organize educational processes, save time, and on this basis, help them fully master the educational information;
- to develop curiosity and accuracy in calculation processes in students when choosing an engineering profession and to ensure quality education, and to explain to them the importance of special disciplines in the in-depth study of production facilities and their structural structure;
- students can work on computers and independently obtain information using the Internet and educational platforms available to them, develop professional skills, etc. Of course, in this case, the teacher's knowledge of pedagogy, special methods, pedagogical technologies, pedagogical skills, etc. develops and improves the teaching of mechanical sciences . ( Figure 3)

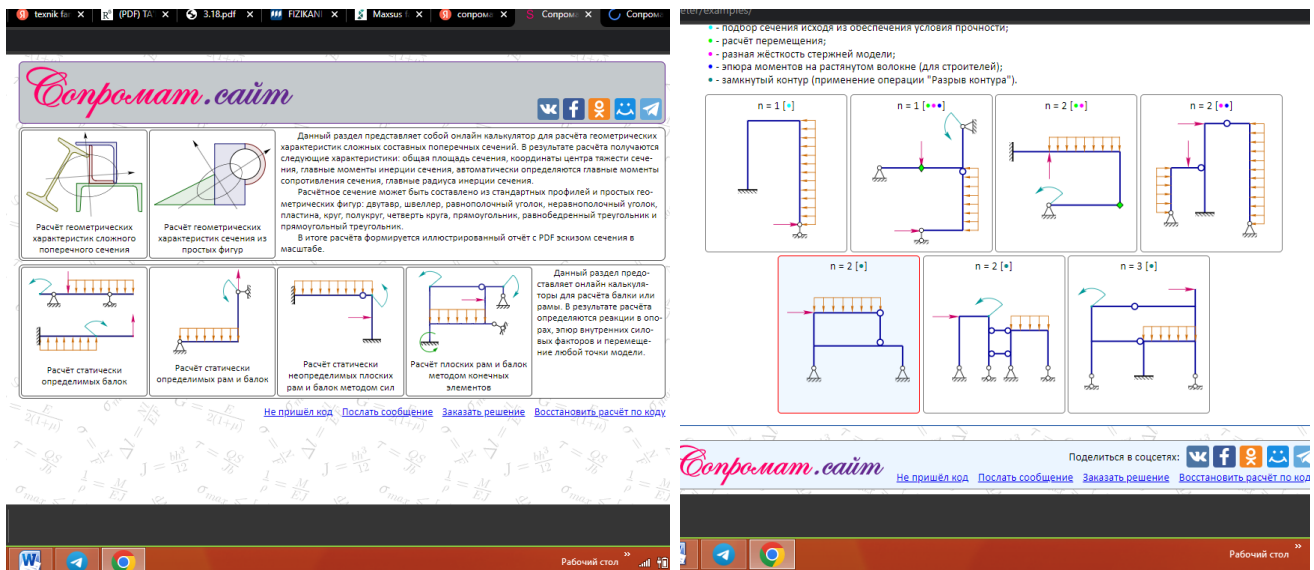


Figure 3

Mechanics sciences in education teacher 's professional preparedness , skill , modern innovative to teach exercises transfer procedures , methods in consideration taken , with instruction , technique tools and information - communication from technologies use , education methods study their weapons choice and use in students engineering about knowledge , skills and qualifications It is worth concluding that mechanical sciences are not a stagnant, undeveloped didactic phenomenon, but rather the result of creative and inventive activity that practically implements a number of factors that ensure the effectiveness of engineering sciences .

Conclusion; Based on these, it should be considered that the teaching of mechanics should be based on the requirements of the time and encourage the use of more precise driving, accelerating and efficiency-increasing factors in the calculation of structures. Taking this into account, it is appropriate to use modern educational



technologies and information and communication tools in assessing student knowledge in teaching special subjects and to pay special attention to them.

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