JOURNAL OF INTERNATIONAL SCIENTIFIC RESEARCH
Volume 2, Issue 5, February, 2025 Online ISSN: 3030-3508
https://spaceknowladge.com

MODERN TECHNOLOGIES OF TEACHING THE SUBJECT "TECHNICAL MECHANICS" IN HIGHER EDUCATIONAL INSTITUTIONS

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ARTICLE INFO

ARTICLE HISTORY:
Received:20.02.2025
Revised: 21.02.2025
Accepted:22.02.2025

KEYWORDS:
technical mechanics, designs, method, analysis, technology, deformation, modern education, interactive education, visualization.

ABSTRACT:

The article discusses the importance of using modern technologies in teaching the subject "Engineering Mechanics" in higher education institutions. The article analyzes the advantages of interactive teaching methods, virtual laboratories, simulations and other modern pedagogical technologies. In addition, the impact of these technologies on the student learning process, their level of understanding and development of practical skills will be considered. The article may be useful for students and teachers of technical specialties.

INTRODUCTION. In the higher education system, the discipline "Technical Mechanics" is of fundamental importance for future engineers and is dedicated to the study of the strength, deformation and motion of structures, machines and mechanisms. When teaching this discipline, it is important to provide students with not only theoretical knowledge, but also to form practical skills. Modern educational technologies make this process more effective and interesting. The article analyzes modern technologies and methods that can be used in teaching the discipline "Technical Mechanics".

Main part:

1. Traditional methods of teaching the subject "Technical Mechanics" and their shortcomings

- Analysis of the traditional system of lectures and practical exercises.
- Passive participation of students, theoretical nature of educational materials.
- Lack of practical skills and low interest in the learning process.

• The problem of the abstractness of the subject and the inability to connect it with real-life examples.

2. Modern educational technologies used in teaching the subject "Technical Mechanics"

• Interactive educational technologies:

* Interactive lectures, discussion sessions, group work.

* Problem-based learning and case study methods.

* Virtual laboratories and simulations: their advantages and applications.

• Visualization and animation technologies:

* Multimedia tools (animations, videos, 3D models) for visual explanation of the principles of technical mechanics.

* Showing the movement of complex mechanisms and developing students' imagination.

• Information and communication technologies (ICT):

* Electronic educational materials and online platforms (e.g., Moodle, Canvas).

* Interactive tests, assignments and learning resources.

* Communication with students through online consultations and forums.

• Software:

* Modeling and calculation using engineering programs (e.g., AutoCAD, SolidWorks, ANSYS).

* Solving technical mechanics problems using software tools.

* Pedagogical aspects of integrating software into the educational process.

3. The role of active methods in teaching the subject "Technical Mechanics":

• Advantages of using active teaching methods (student activity, development of self-study skills).

• Examples of using active teaching methods such as "brainstorming", "insert", "creating problem situations", "project method".

• Development of students' interaction skills through role-playing and team projects.

4. Strategies for developing students' competence in the educational process:

• Ensuring the coherence of theory and practice.

• Formation of engineering thinking in students (analysis, synthesis, evaluation).

• Integration of real engineering issues into the educational process.

• Stimulation of independent learning and self-development skills.

• Adaptation of curricula to the professional needs of students.

5. Problems encountered in the teaching process and ways to solve them:

• Lack of modern teaching materials, the need to improve the skills of teachers.

• Increasing student motivation, arousing interest in the learning process.

• Improving the material and technical base (creating virtual laboratories, providing software).

• Assessing and improving the effectiveness of the learning process.

Conclusion

The use of modern educational technologies in teaching the discipline "Technical Mechanics" helps to increase students' interest in the learning process, consolidate theoretical knowledge and form practical skills. Interactive learning, visualization, ICT, software and active learning methods play an important role in developing students' competence. Higher educational institutions should improve the educational process to train future engineers as specialists who can meet modern requirements.

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