

INTEGRATION AND INTERRELATION OF SCIENTIFIC TERMINOLOGY OF ENGINEERING GRAPHICS WITH OTHER SUBJECTS

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Abstract: This article analyzes the integration of engineering graphics scientific terminology with technical, natural, and human sciences. Through an interdisciplinary approach, the standardization, translation, and role of engineering graphics terms in teaching are highlighted. Also, the inextricable connection with computer science, mathematics, and physics is shown through examples. The article discusses the importance, effectiveness, and linguistic problems of interdisciplinary integration in the modern education system.

Keyword: Engineering graphics, scientific terminology, interdisciplinary connections, terminology system, technical terms, digital drawings, mathematics and physics, linguistic aspects, technical translation

Input: Scientific terminology of engineering graphics is a system of special terms denoting technical drawings, graphic information, and engineering communication. Today, this discipline is not only a tool for drawing or teaching, but is also being formed as a multidisciplinary scientific field integrated with other disciplines. Graphic language is inextricably linked with technical thinking, computer science, design, architecture, and construction. Therefore, in this article, the connection of the terminology of this science with other disciplines is analyzed.

Engineering graphics is a field of scientific and applied science that represents engineering solutions using technical drawings, models, and visual information tools. This field has its own special scientific terminology, which is deeply connected with many other disciplines, such as engineering, mathematics, physics, computer science, and linguistics. Engineering graphics terminology plays an important role not only in the creation of drawings and graphic representations, but also in the implementation of engineering projects using modern digital technologies and CAD (Computer-Aided Design) systems.

The mutual integration of science and technology in the fields of modern engineering is constantly growing. In this process, each discipline has its own system of terms and concepts, and their harmonization and organic connection with each other is one of the important requirements of modern education and scientific research. The integration of the science of scientific terminology of engineering graphics with other disciplines serves not only for the correct understanding and application of terms, but also for the more effective implementation of technical projects.

In addition, the linguistically correct and uniform expression of terminology is of great importance, especially in a multilingual engineering environment. Therefore, one of the important tasks is the standardization of terminology, the formation of uniform concepts in the processes of interdisciplinary communication and translation.

This article analyzes the integral integration of engineering graphics scientific terminology with other disciplines, its interrelationship with technical, natural, and linguistic sciences, and also considers the significance and current problems of this integration in the educational process.

Methodology: This article uses multifaceted approaches to analyze the integration of engineering graphics scientific terminology with other disciplines. The following methods played a key role in the research process:

- Analysis of the literature - scientific sources in the fields of engineering graphics, engineering, mathematics, physics, and linguistics in Uzbek, Russian, and English were studied. This method allowed for a deep understanding of the theoretical foundations of terminology.
- Comparative analysis - the terms of engineering graphics and their equivalents in other disciplines were compared, which helped to determine the type of interdisciplinary integration.
- Observation and practical experience - the processes of teaching engineering graphics and other disciplines in higher educational institutions, as well as the use of terms in technical projects and software, were studied.

With the help of these methods, the scientific foundations of interdisciplinary integration, terminological adaptation, and its practical manifestations were comprehensively studied. The research results made it possible to formulate recommendations aimed at increasing the effectiveness of the interdisciplinary approach in modern engineering graphics education.

Results: In the research process, the close connection and integration of the scientific terminology of engineering graphics with other disciplines was confirmed by the following main results:

1. Interdisciplinary terminological interdependence was revealed. Engineering graphics terms often have commonalities with concepts used in the fields of mathematics, physics, and computer science, creating a terminological bridge between these disciplines.
2. Digital technologies and CAD programs have increased the close connection of engineering graphics terminology with computer science. This requires mastering software terms along with technical knowledge when creating graphic expressions and technical drawings.
3. The relevance of the issue of uniform use of terms in a multilingual environment has been determined, and it has become clear that there is a great need for translation and standardization work in this area.
4. The interdisciplinary approach in the educational process contributes to the integration of engineering graphics with related fields and serves as an effective tool for strengthening students' knowledge.
5. Linguistic and terminological problems have been identified, and there is a need to create consistent methodologies and terminological dictionaries to solve them.
6. Interdisciplinary integration of engineering graphics terminology covers not only technical sciences, but also linguistics and translation, which has made science multifaceted and modern. These results indicate the need for further deepening of interdisciplinary connections and further improvement of terminology and serve as the basis for the introduction of new approaches in the teaching of engineering graphics.

Discussion: It is difficult to fully master the terminology of engineering graphics without integration with other disciplines. For example, to correctly understand graphic terms, knowledge of mathematics is necessary; when creating digital drawings, the basics of computer science are mandatory. Graphic language acts as a "bridge" between general and special disciplines. In addition, the problem of uniform understanding of graphic terms on an international scale remains relevant. More in-depth research is needed on issues such as translation, adaptation, and localization.

Conclusion: The science of scientific terminology of engineering graphics is developing in close integration with other sciences. Graphic language has become an integral part of multidisciplinary teaching. In the course of the article, the direct connection of graphic terms with computer science, mathematics, physics, translation, and linguistics was proven. In the future, it is necessary to conduct research on deepening this integration, standardizing terms, and improving teaching methods.

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