

ENGINEERING EDUCATION AS A FUNDAMENTAL RESOURCE FOR SUSTAINABLE DEVELOPMENT

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Abstract: *the characteristics of the current level of development of higher engineering and technical education are given. The feasibility of introducing information technologies into the process of training future engineers is indicated. The conclusion is made about the need to systematically improve the professional qualities of future engineering specialists.*

Keywords: *innovative development, technological sphere, engineering education, fundamental knowledge.*

In the modern period, engineering education is characterized by accelerated innovative development. The main role in this process belongs to scientific and technological progress. As experts note in their scientific works, the dynamic nature of the development of the technological sphere affects not only social relations, but also the person himself. Thus, artificial intelligence is already superior to humans in many skills, largely possessing some abilities that humans do not have.

It must be emphasized that digital information technologies are cross-industry in nature. That is, progress in any branch of science and technology is impossible without their active implementation [1]. It is information technologies in modern scientific and technological development that are an innovative interdisciplinary element in the timely solution of various practical problems of social production.

Today, engineering activities are becoming the most important fundamental resource of modern social development. At the same time, it is the most important element that ensures the competitiveness of the social product in the context of the development of various technologies. Engineering activity is an interconnected system that includes research and design subsystems that ensure the production of innovations in various fields and environments [2, 3].

The engineering approach is in demand in any innovative activity. However, it is important to use in the production process not only technical experience, but also the sociocultural knowledge of a specialist, which contributes to the development of the creative nature of engineering activity. A modern engineer is directly involved in the sociocultural space, and his professional development

occurs in the conditions of digital modernization of such important spheres of society as politics and economics. Engineering activity is becoming an independent sphere in modern culture. Therefore, it is so important to train a generalist with both scientific, technical and social and humanitarian knowledge [4].

The processes outlined above require changes in approaches to the formation of professional qualities of engineers. Engineering education in the context of the new technological paradigm of social development presupposes, first of all, not a large volume and broad content of educational material, but the educational technologies used in the educational process and the interactive attitude of participants in the educational process.

Combining research activities with the practice of creating and using innovative technologies contributes to the formation of qualitatively new integrated economic systems capable of innovative breakthroughs. Modern technological progress creates new requirements for knowledge of technology, society and human life in the unfolding technological future to discuss the question of how, who and under what conditions constructs and manages the future. Thus, in the new education system, which meets the requirements of modern technological development, high demands are placed on higher education teachers. He must be a creative teacher, allowing participants in the educational process to obtain and transform the necessary knowledge. At the same time, the most important task in the process of educational communication becomes the productive translation of acquired knowledge into economics and the ability to use it in practice.

Modern higher engineering educational institutions are entering a new frontier of educational practices based on comprehensive interdisciplinary research. Therefore, fundamental engineering knowledge, knowledge of mathematics and computer science, as well as comprehensive social and humanitarian training in psychology, sociology, and philosophy will be needed. Today, when higher education is undergoing major changes throughout the world, it is necessary not only to understand the tasks facing engineering higher education institutions, but also to accumulate the best world achievements and practices, and to take into account the innovative experience of creating a modern educational environment of a higher educational institution [5].

Thus, engineering education in the context of the new technological paradigm of social development in many foreign countries is actively practicing the so-called STEAM education - a major direction, the focus of which is the development of an interdisciplinary approach in education. This path allows us to overcome the limitations of the subject-based approach in technical disciplines, expanding the area of search for solutions beyond the framework of the technocratic method. Much attention is paid to the active synthesis of natural sciences, information technology, engineering, mathematics, innovative approaches, as well as social technologies and art. Such training helps to

combine the entire spectrum of professional, general professional and universal competencies in the preparation of a modern technical specialist.

Thus, robotics as part of STEAM education is taught by involving students in working with special constructors, solving problems taken from everyday practice, requiring the use of knowledge from various sciences. Great importance is attached to working in teams, implementing completed projects, developing design skills, and the ability to present the result.

The orientation of business towards projective activity as an effective technology for the implementation of strategic plans and, in connection with this, an increase in the share of collective creative work actualizes the presence of such social and communicative competencies among engineers as cooperation and the ability to conduct a constructive dialogue. And working at international levels requires engineers not only to speak foreign languages, but also to understand cross-cultural communication. Already today, research shows that socio-behavioral competencies are very relevant for employers when employing graduates of higher engineering educational institutions.

Thus, engineering education in the context of the new technological paradigm of social development is an important factor in the formation of engineering personnel for the sustainable development of society.

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