

## SOCIAL-PEDAGOGICAL REQUIREMENTS FOR PREPARING FUTURE ENGINEERS FOR INNOVATIVE ACTIVITY

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### Abstract:

This article describes the development of scientific-research and innovative activity in technical higher education institutions, the fact that the innovative activity of a future engineer based on educational, cognitive and scientific-research activities serves to develop its various aspects, the socio-pedagogical requirements for preparing future engineers for innovative activity are described.

**Keywords:** educational trajectory, creative competence, conceptual, modernization, cognitive, invention, exploitation, consulting services, innovation, strategy, integration.

It is known that future engineers are being trained in the integration of pedagogical and technical knowledge in technical higher education institutions to form their necessary creative competencies, to build an individual educational trajectory on a modular-credit basis, and to develop a conceptual and methodical system of training. The conceptual methodical system of preparing future specialists for innovative engineering activities is being improved based on the integration of pedagogical and technical knowledge.

The content of the innovative activity of an engineer is characterized by a large number of engineering works and branches (engineering, chemical technology, electric power, etc.).

At the same time, objectified knowledge and skills in a complex of various types of design, technological, technical-economic, design and computational engineering sciences form the basis of the engineer's activity. The content of these disciplines reflects the experience of engineering and technical activity from the process side, which includes the description of the nature and sequence of actions or technological changes, as well as the characteristics of the subject structures of the practice.

The innovative activity of the student allows to control both the content and the level of complexity of the product or process being invented as a means of learning. In general, an engineer is given a topic or direction of research, and the complexity and level of his invention is determined by the subject of work itself and depends on many external factors.

The defining result of innovative activity is the development of new technologies that will be competitive in the world labor market. The scientific and technical potential of society's development is characterized by the increasing complexity of rapidly changing technologies. Innovative potential is determined by modernization and the latest developments in the field

of technical facilities and technologies.

Innovative potential depends entirely on the intellectual and personal capabilities of the subjects of innovative activity. Both scientists and engineers are constantly involved in the development and implementation of innovations. The engineer is a central figure of scientific and technical progress and innovation, because the share of engineering work in the implementation of modern technical projects is constantly increasing. This is due to the constant sophistication of the latest technologies and the development of new technologies.

A modern engineer, adapted to the current economic conditions, is not a designer who knows how to use the results of simple experiments, while he must be well acquainted with the latest technologies.

Therefore, the result of innovative activity of future engineers is not only innovation, creation of innovative products, but also scientific knowledge, within which practical skills and abilities are realized. Advanced modern technology cannot be created without the use of scientific knowledge. The student's research and teaching activities take an intermediate approach between theory and practice.

In this regard, the innovative activity of a student of a higher educational institution based on educational, cognitive and research activities serves to develop various aspects of his personality. In addition, the innovative product created by the student is an independent indicator of his personal and cognitive development.

There is great freedom of choice in the field of engineering creativity, there are very valuable unique technical and technological solutions in this activity. Therefore, engineering activity is characterized by a high level of intellectual creativity.

To sum up, the main task of the higher education institution is to prepare competitive specialists who have the ability to quickly adapt to the conditions of continuous renewal of production, control methods, mutual exchange, improvement of labor organization, as well as methods of quality improvement.

## References

1. Turaev S.Zh. Improving the quality of students' professional activities with involvement in a scientific project. //XII International Scientific and Practical Conference "Innovation in Technology and Education", 21-22 March 2019: //Branch of KuzGTU in Belovo. – Belovo: Publishing house of the KuzSTU branch in Belovo, Russia; 2019. – Part 4. pp. 240-242.
2. S.L.Ibragimov. Talabalarda mathematician modellashtirish usuli erdamida kasbiy kunikmalarni shakllantirishning psychologist pedagogik asoslari Talim, fan va innovation (manaviy-marifiy, ilmiy-uslubiy journal) - Tashkent, 2019. No. 4, -B. 112-115
3. Ozhegov S.I., Shvedova N.Yu. Explanatory dictionary of the Russian language. – Moscow: Azbukovnik, 2006. – 944 p.
4. Davydov V.V. Problems of developmental education. – Moscow: Pedagogy, 1986. – 240 p.

5. Pologrudov V. A. Questions of methods of teaching physics at universities. - Kemerovo. – KSU, 1979. – 122 s.
6. Soviet encyclopedic dictionary. /A. M. Prokhorov. – Moscow: Soviet Encyclopedia, 1981. – 1600 pp.: ill.
7. Ismoilov D.M. Methods of scientific knowledge and research in the content of secondary educations on physics - European Journal of Research and Reflection in ..., 2020.

