

THE IMPORTANCE OF FORMING DUAL EDUCATION FOR STUDENTS IN PRODUCTION ENTERPRISES

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Annotation. In this article, the organization of the dual education process for students of engineering universities at production enterprises and the ways of forming its main elements are analyzed.

Keywords: education, engineering, dual education, production, integration, research, analysis.

Introduction. In the training of highly qualified engineers in modern mechanical engineering, one of the modern technologies is the implementation of mutually beneficial cooperation with machine-building production enterprises, i.e., synergetic integration cooperation [1].

In modern science, in the formation of a new system, in its self-organization, some of the order parameters can be rejected, and some can be replaced or adopted by others. These new ideas serve as order parameters in the knowledge system [2]. It is known that in open, unstable systems, the cause of order is the instability of the system [3]. When such unstable systems transition from one state to another, various models of motion arise. These action models subordinate all elements of the system and lead to the formation of a new structure. These action models are described in synergetics as order parameters [4]. Order parameters are formed by the interaction of system elements as a result of mutual cooperation, and a new order leads to the formation of a new structure in the system.

It is known that science as a system does not consist of a simple sum of various fields. Rather, all spheres in the scientific system interact as parts of the whole. A new correspondence arises between the whole and its parts. As a result, a new integrative union is formed. This can be seen in the example of the emergence of interdisciplinary disciplines as a result of integrative processes in future science, the convergence of natural and human sciences, and the application of values in scientific research.

Results and discussion

We will try to define the concept of synergistic integration of higher education and production in the training of future engineers. According to it: "Synergetic integration of higher education and production is the manifestation of intellectual products created in each subsystem of the holistic system as completely new and a joint creative activity that creates a single educational space of a technical university, science and production, demonstrating a strong potential for the creative development of all subjects, achieving high-quality and innovative

training of future engineers. In this type of integration, not only the training of future engineers is carried out, but also joint activities that implement pedagogical, technical, and socio-economic tasks in the interests of the two systems (higher education and production).

In technical educational institutions, more work is carried out in cooperation with manufacturing enterprises. This cooperation is formed as the integration of higher education and production, that is, bilateral education-dual education. If we analyze the work and tasks carried out jointly, it becomes clear that higher educational institutions are more interested in this. However, with such integration, it is somewhat difficult to train future specialists who are mutually beneficial.

As the main principle of the synergistic integration of engineering higher education and production it should be especially noted that higher educational institutions and production enterprises bear equal responsibility in the process of training qualified specialists, taking into account the interests of both parties. One of the main interests in the engineering higher education system is the training of future engineers, working on scientific projects, conducting internships, etc., using the technical base and capabilities of production. The interests of the production enterprise include, first of all, the search, selection, and creation of a base of specialist personnel, reducing the costs of their retraining and production, and training the necessary specialist personnel. At the same time, the employer takes an active part in the formation of professional knowledge of specialists, the adaptation of graduates to the working conditions of the enterprise, and the formation of the "Master-Apprentice" system. In turn, future engineers not only get acquainted with specific production conditions, master the basics of professional activity, but also have the opportunity to find a job in their specialty after graduating from a higher educational institution.

In ensuring dual education, it is necessary to establish systematic interaction between engineering higher education and production. Training, advanced training and retraining of personnel, as well as conducting joint scientific research, implementing scientific developments, etc. These integration processes cover different areas of activity and manifest themselves in different forms.

Synergistic integration of engineering higher education and production is, firstly, economically effective, secondly, they accelerate scientific and technological progress, thirdly, they allow the rational use of the intellectual potential of science and higher education not only in one country, but also in the entire world community. Generalization, analysis, and implementation of this experience can bring great benefit to all participants in this process. Engineering, as a result of cooperation between higher education and production, ensures high-quality training of students in their chosen specialty. The impact of such cooperation depends on the form of its implementation, and the educational field creates broad opportunities for the student to acquire knowledge, skills, abilities, professional growth, and subsequent activities.

There are many forms of cooperation:

- educational, scientific, and production complexes;

- branches and supporting departments;
- scientific, educational, and engineering centers;
- targeted intensive (individual) student training systems;
- technoparks;
- centers for training creative works of specialists, students and creators, etc.

Based on the research results, it is planned to organize the educational process for engineering students, conduct practical and laboratory classes, conduct research work and implement the results in solving problems and issues awaiting solutions at machine-building production enterprises.

Conclusion

In conclusion, each of the forms of dual education has its own characteristics in educational institutions depending on the conditions. Their systematization, the development of a cooperation mechanism, ensures the continuity of training future engineers.

One of the main benefits of dual education is the training of future engineers, working on scientific projects, conducting internships, etc., using the technical base and capabilities of production. The interests of the manufacturing enterprise include, first of all, the search, selection, and creation of a base of specialist personnel, reducing the costs of their retraining and production, and training the necessary specialist personnel. In this case, the employer actively participates in the formation of professional knowledge of specialists and the adaptation of graduates to the working conditions of the enterprise. In turn, future engineers not only get acquainted with specific production conditions, master the basics of professional activity, but also have the opportunity to find a job in their specialty after graduating from a higher educational institution.

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