

DEVELOPMENT OF PROFESSIONAL ACTIVITY OF FUTURE ENGINEERS RELATED TO LIGHT INDUSTRY

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ABSTRACT

The article substantiates the need to develop and implement new conceptual approaches to professional training, retraining and advanced training of teaching staff for the system of vocational education. The features and specifics of modern engineering and pedagogical education and the development of professional activities of future engineers in the light industry are determined. The methodology of research of processes of informatization of modern engineering and pedagogical education is substantiated.

Key words: *engineering and pedagogical education, information technology, pedagogical innovation, light industry, professional activities.*

АННОТАЦИЯ

В статье обоснована необходимость разработки и внедрения новых концептуальных подходов к профессиональной подготовке, переподготовке и повышению квалификации педагогических кадров для системы профессионального образования. Определены особенности и специфика современного инженерно-педагогического образования и развития профессиональной деятельности будущих инженеров легкой промышленности. Обоснована методология исследования процессов информатизации современного инженерно-педагогического образования.

Ключевые слова: *инженерно-педагогическое образование, информационные технологии, педагогические инновации, легкая промышленность, профессиональная деятельность.*

INTRODUCTION

Modern domestic pedagogical science, supporting the innovative educational paradigm, seeks to overcome the imbalance between the necessary and actual levels of continuous professional education with in order to ensure its relevance and compliance with the requirements of the modern labor market and on the basis of the decision of the president of the republic of Uzbekistan "On measures for the further development of light industry and stimulation of the production of finished products". On the other hand, the problem of professional training of future engineers in the field of light industry is being updated by the socio-economic, scientific, technical, technological and production changes that are taking place in the domestic light

industry. Therefore, the improvement of the organizational, pedagogical and methodological support of design and development activities of students in accordance with the requirements of informatization of the educational process can make a real contribution to solving an urgent problem - the high-quality training of qualified sewing engineers.

DISCUSSION AND RESULTS

In recent decades, there have been changes in the concept of "education", a revision of the goals, structure and content, both in secondary and vocational schools, and further internationalization of education. The nature of these changes is largely due to the increased requirements for the qualifications of specialists for effective operation in a globalizing world.

New requirements for the field of education are mainly due to the following processes taking place in science and technology.

First, the importance of the scientific and technological potential in the overall system of productive forces is growing, and the qualitative characteristics of this factor are becoming decisive - the ability to generate fundamentally new ideas, correctly evaluate them, and quickly implement them on the domestic and international markets. It is obvious that the listed parameters to a decisive extent depend on the qualifications of personnel - scientists, engineers, technicians, workers, and, consequently, on the effectiveness of the education system.

Secondly, new knowledge, new types of equipment, new production processes and, accordingly, new professions appear. At the same time, we are talking not only about the creation of new specialties, but also about an intensive change in the quantitative ratios in the socially necessary professional structure of labor resources.

Thirdly, most of the new directions in science and technology are interdisciplinary in nature. The most significant discoveries and inventions today are made, as a rule, "at the intersection of disciplines", multidisciplinary training of specialists is required to manage new technology, so the traditional structure of education, built on a subject basis, is currently inadequate.

Fourth, dynamic and profound shifts are taking place in the sphere of production. The restructuring of individual enterprises and entire industries, associated with the renewal of products and services, entails major changes in the professional composition of the workforce.

Scientific and technological progress requires serious qualification of specialists. As a result, a situation is emerging in which significant groups of people during their careers are faced with a real need to change their profession, or at least constantly

replenish and modernize their professional training and development of the professional activities of future engineers.

In modern conditions, there is a need to develop and implement new conceptual approaches to professional training, retraining and advanced training of teaching staff for the system of vocational education. The main prerequisite for these innovations is updating the goals and content of engineering and pedagogical education based on an activity approach and personal orientation, updating the competence-based paradigm, taking into account international experience and the current level of informatization of production processes in light industry.

The methodology for studying the processes of informatization of modern engineering and pedagogical education is based on the following components:

- a systematic approach - contributes to the analysis of engineering and pedagogical education from the standpoint of an integral system and its components in the variety of their connections and relationships;

- activity-personal approach - determines the leading role of various forms of social activity in the formation and development of the integral personality of an engineer-teacher, and determines that the subject of any activity in social systems is a qualified specialist;

- integrative-holistic approach - involves the consideration of educational systems as sets that organically combine procedural and productive components, which ensures their management on the basis of program-target orientation;

- managerial-technological approach - based on the introduction of the most important provisions of the theory of social systems management and pedagogical management;

- cybernetic approach - aimed at using the methods of formalization, abstraction and generalization in solving the problems of functioning and development of the system of engineering and pedagogical education, as well as the application of general laws and principles of managing pedagogical processes.

Such multifunctionality of a specialist determines the specifics of this type of pedagogical education. The specificity lies in the fact that within the scope of the teaching load, normatively established by the state educational standard, the educational and professional program and other documents, the future engineer-teacher actually masters two different types of professional activity - technical (branch) and pedagogical. Moreover, the technical form is mastered at two different levels of education - the primary (working component) and the higher (engineering and technical).

The main reserve for updating the personnel potential for vocational education is pedagogical universities and colleges, where specialists with high-quality professional skills are trained; modern special knowledge of a particular industry; a high level of pedagogical competence based on the latest achievements of psychological, pedagogical and methodological sciences, critical forms of thinking, creative abilities, the ability to apply innovative methods and information technologies in practice.

Compared to the previous industrial society, where everything was focused on the production and consumption of goods, the information society produces and consumes intelligence, new knowledge, which leads to an increase in the share of mental labor. This means that a person is required to have the ability for intellectual improvement, the disclosure of creative potential. Members of the information technology society must have the ability to independently and actively act, improve, make decisions, adapt flexibly to changing conditions of life. Solving these problems requires efforts, both from the education system and from society as a whole.

The result of the formation of the information society was a change in the means and nature of labor in the direction of its intellectualization, the rapid development of science and high technology industries, the revision of scientific and educational concepts based on the achievements of cybernetics, informatics, synergetics, pedagogy, psychology and other scientific fields. In advanced economies, supporting IT-driven innovation and investment in the information industry is a public policy priority. At the state level, this important direction has become a priority in the field of education.

The professional activity of an engineer-teacher directly affects the determination of the purpose of his training, the formation of the content of academic disciplines, the choice of methods, means and forms of organizing professional training. A system of requirements that includes the qualities and personality traits of a future engineer-teacher; features of the processes of technical thinking; the knowledge, skills and abilities that he must possess in order to effectively perform pedagogical functions in the field of vocational and technical activities are reflected in the educational and qualification characteristics. It can be considered as a model of professional training of a specialist of this profile.

By the nature of the functions performed by a specialist, engineering and pedagogical education belongs to the pedagogical sphere of professional activity. However, the subject basis of activity is technical, production-technological and informational training. That is, technical and technological, pedagogical and

informational knowledge and skills form an integral system of professional and pedagogical knowledge and skills.

The informatization of education and production places a number of additional requirements on their professional qualifications for modern engineers. These requirements consist in mastering new information technologies, in particular, the readiness to organize and accompany professional activities by means of modern information technologies. One of the important indicators of the structure of professionally significant characteristics of any specialist, including a future engineer-teacher, is his readiness for professional activities, in particular, for the use of information technology in professional activities.

The modern society of information technology is interested in the future engineers being able to independently, actively act, make decisions, adapt flexibly to the changing conditions of the development of science, technology and production. The introduction of information technologies in the process of vocational training opens up new opportunities for organizing and improving the education of future engineers. Computer technology and informatics in pedagogical universities are now used not only as a subject of study, but also as a means of teaching. In particular, automatic learning systems, electronic teaching aids, electronic knowledge control tools, computer business games, pedagogical software products, etc. are widely used. For example, the research work of a future engineer in the light industry to develop a collection develops a sense of style, sharpens the vision of the harmony of line and form, develops imagination and artistic intuition, awakens creativity, hones the systemic nature of professional thinking - the necessary components for working in the most complex art of costume creation. Work on the design of collections, especially author's ones, ensures the versatility of a specialist, since it is aimed at increasing mobility, competence, expanding his activities in favor of innovation and creativity, creates conditions for the full realization of the student's capabilities and professional development of the future engineer (designer) of light industry products.

CONCLUSION

Summing up the above, the analysis of the trend in the use of information technologies in the professional training of engineering specialists in the field of light industry makes it possible to draw a number of general conclusions. Information technologies mainly act as an auxiliary element in the activities of the teacher, providing, first of all, reducing the time for organizing, planning and monitoring the educational process. The modern content of the professional training of engineers is currently focused on using the possibilities of interactive computer graphics. This approach is implemented primarily by professional computer-aided design tools in

the light industry. Pedagogical experience and educational practice show that the use of a computer-aided design system (CAD) allows solving the tasks of training engineers in the field of light industry at a qualitatively new level by designing and computer-aided organization of the production process.

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