



**PREPARATION OF FUTURE PROFESSIONAL EDUCATION TEACHERS FOR
ORGANIZATION OF THE AUTOMATED DESIGN PROCESS**

Khakimova M. O.

Assistant, Tashkent Institute of Chemical Technology

Jalilov A. A.

Head Teacher, Military-Academic Lyceum “Temurbek School”

Abstract

The article deals with the preparation of teachers of professional education in higher education institutions for the organization of the automated design process and the effective organization of the preparation of teachers of modern vocational education for automated design, the creation of appropriate teaching aids, orienting students to educational activities. the topical issues of determining the trajectory of the acquisition.

Keywords: computer-aided design, information and communication technologies, pedagogical design, professional and pedagogical activity, technological training, pedagogical reality.

Introduction

The results of the analysis of research work show that the specifics of the training of future teachers of professional education in higher education institutions can be shown below:

- In the training of future teachers of vocational education is based on the professional and qualification requirements for working groups, specialists;
- The content of technological training involves the design, implementation of person-centered educational technologies for the training of future teachers of professional education and ensuring their thorough acquisition of professional skills;
- Ensuring the professional and pedagogical orientation of the educational process in all disciplines by the departments training future teachers of professional education is ensured through the integration of psychological-pedagogical and production-technological and information components of education;
- Pedagogical and design activities of future teachers of professional education are carried out on the basis of taking into account the specifics and development prospects of enterprises, the implementation of their own learning technologies, the combination of industrial education with production activities.

The integration of information and communication technologies into the educational process complements the above features with new content, so the content of training of professional, educational teachers has changed and special requirements have been put forward for the design of the educational process. Design is closely related to science and design, as well as engineering activities to create an image of a future event [1].



Design is a creative activity of the educator, and the educational technology that reflects the personal characteristics of the learner is his product.

According to educators of technical educational institutions, the modern interpretation of the term "design" means the process of creating a project, that is, a model of the proposed or possible object, its condition, and image.

It is known that most products of human labor are developed by first designing them. In this sense, design is the process of creating a project, that is, a model of an intended or probable object, that is, the state before the thought becomes a real product.

In modern education, three types of design are actively developing, which differ in the object of change, purposefulness and outcome:

- Psychological and pedagogical design aimed at changing the person and interpersonal relationships in the educational process;
- socio-pedagogical design aimed at changing the social environment or solving social problems by pedagogical means;
- Educational design aimed at designing the quality of education and innovative changes in education systems and institutions.

However, design activity is closely related to the concepts of 'design' and 'modeling'. Design and forecasting are focused on achieving a common goal and outcome. In the process of construction, the details and elements of the projected object are developed, and in the design, a system of interconnection of these elements is created, the project is developed and formalized.

A model is a system that can be imagined or realized, that can reflect or reconstruct the object of research, replace it, and allow us to obtain new information about the object. To understand the essence of modeling, it is important to keep in mind that design is not the only source of knowledge about an object. Modeling provides a general knowledge of the process. This situation is taken into account not only at the stage of model construction, but also at the final stage - the accumulation and generalization of knowledge and research results obtained on the basis of various means of cognition [2].

Improving the readiness of future teachers of vocational education to organize the process of automated design on the basis of automated design tools, a modular-competent approach in preparing them for automated design was chosen as a conceptual framework. Its implementation in practice will ensure organizational integrity and efficiency of preparation for automated design. In addition, a logic-information approach was chosen, which allows to increase the effectiveness of the modular-competent approach.

The modular-competent approach in vocational education is a model of the organization of the educational process, in which the set of professional competencies of the learner is expressed as the goal of education, and the module device of the structure and content of vocational education as a means to achieve it.

The modular structure consists of interconnected system elements and has "inputs and outputs" in and out of the system. Relative completeness, standardization, autonomy, consistency, and variable integration with other modules are the main characteristics of the module. Theoretical and practical



aspects of professional activity are studied comprehensively and consistently within the modules, which allows for the orderly and systematic acquisition of competencies, leading to an increase in motivation of learners. Thus, the module is characterized by completeness, independence, comprehensiveness as a functional unit of the purpose of the program of professional training of future specialists [3].

The logic-information approach became an important basis in the development of a model for improving the readiness of future vocational and professional teachers to organize the process of automated design and training throughout gaining a new content. The logic and information technology of teaching should be seen as a natural addition to the quality and effectiveness of education. At the same time, it is taught to effectively implement professional education using modern information and communication technologies and organize the control and assessment of knowledge using online, multimedia technologies, simulator systems, intelligent computer systems of assessment [4].

The content of the motivational-value component of the process of improving the training of future teachers of vocational education in the organization of the automated design process on the basis of automated design tools includes:

- Resentations; computer modeling and design techniques and technology;
- The content of the introductory lessons and the information block, aimed at acquainting students with modern information and communication technologies and the possibility of their application in future professional and pedagogical activities;
- Master classes conducted by companies developing automated design systems and pedagogical software products;
- Preparation and discussion of reports on the master class.

These serve to develop students' self-assessment and self-monitoring skills. The presence of motivation in learning helps to activate cognitive activity [5].

It should be borne in mind that as a result of the student's entry into the world of information, there are changes in the system of values, which must be formed and corrected. Man's system of values is the "foundation" of his relationship to the world. Values are a relatively stable, socially conditioned, choice-based attitude of a person towards material and spiritual social benefits.

Based on the above, it can be said that the system of values, properly selected and implemented in the process of improving the readiness of future vocational education teachers to organize the automated design process on the basis of automated design tools, allows: forming a culture of communication in groups or social networks.

We see in the following paradigm the optimal option for the integration of the content of the process of improving the readiness of future professional education teachers to organize the process of automated design in the following paradigm: computer science in engineering design, computer technology, process and technological systems design. Preparation for the organization of the automated design process is conceived as a targeted functional part, in which integrative learning content and the technology of its acquisition are integrated into the system as a high level [6].

Training of future professional education teachers to organize the automated design process includes:



- Information block for study, consisting of educational elements and methodological guidelines and theoretical materials;
- Multimedia textbook with presentations;
- A set of tasks in different levels aimed at improving information and communication training.
- Control tasks, control block, test of task database, control questions for doing control tasks.
- Methodical recommendations for the teacher to prepare for the organization of the automated design process and methodological recommendations for completing the writing of abstracts [5].

In training future vocational education teachers to organize an automated design process, the following is required:

- Skills in using application software;
- Acquire the skills of searching, processing and storing information on the Internet;
- Work with information learning space, the use of automated design systems: knowledge of the basics of system design, the ability to design various structures using the compass graphics editor, the creation of mathematical models of systems;
- Ability to design learning processes using applications, knowledge of systems modeling technologies in Compass graphics editor and Mathcad math editor.

The reflexive-productive component of preparation for the organization of the automated design process assesses the student's activity, information and communication competencies, knowledge and skills, level of preparation [6].

In conclusion, it is clear from the above considerations that training future professional education teachers to organize an automated design process requires the creation of appropriate conditions for the effective management of their learning process. This, in turn, implies the design of forms and methods of organizing the educational process, with an emphasis on students' self-study, independent control over their teaching and research activities. Especially in the study of information and communication technologies, the organization of self-study is very important, because the generation of software is changing every day, the capabilities of computer technology are growing, new opportunities for visualization and virtualization of educational and development processes are emerging.

Thus, it is necessary to create appropriate teaching aids to prepare for the effective organization of the automated design process, which will help students to direct their learning activities and determine the trajectory of individual learning.



References

1. Khodjabaev A., Khakimov J., Usmonov J. Model of improving students' information and communication skills on the basis of computer-aided design // Vocational education. - Tashkent: 2020. -N^o1. -B. 33-35.
2. Xakimov J.O. Improving the information and communication training of future teachers of vocational education through computer design // Scientific Bulletin of Namangan State University. - Namangan: 2020. -N^o1. -B. 336-343.
3. Urozova M.B. Improving the technology of preparation of future teachers of vocational education for design activities. Doctoral dissertation on pedagogical sciences. 13.00.05. - Tashkent, 2015. pp. 110-112.
4. Hamidov J.A. Technology of creation and application of modern didactic means of teaching in the training of future teachers of vocational education. Doctoral dissertation on pedagogical sciences. 13.00.05. Tashkent: 2017. pp. 127-129.
5. Fedulova M.A. Formation of special competencies of future teachers of professional training: author. diss. ... Kand. ped. science: 13.00.08 / - Ekaterinburg. - 2008. 12-13 p.
6. Khakimov J.O. Documenting procedures for implementing the process of project teachers to computer projects. International Journal of Advanced Science and Technology (Scopus). Vol. 28, No. 20, (2019), pp. 881-889.