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METHODOLOGICAL ASPECTS OF DISTANCE LEARNING FOR DEVELOPING THE PROFESSIONAL COMPETENCE OF STUDENTS OF THE DIRECTION "COMPUTER ENGINEERING"

V.B. Kuznetsova, E.V. Kim, G.K. Mukhtarova, U.A. Azimova

Abstract: This work is based on the use of distance learning technologies in education, which will make it possible to individualize training, and in turn contributes to the formation of professionally important qualities for students of the direction of "Computer Engineering". The experimental work was aimed at developing a technology for the formation of students' professional competence.

The article shows that the mastery by students of knowledge, skills and abilities in the field of computer engineering was aimed at their conscious application in solving problems of the educational and cognitive process, and subsequently in professional activity.

The article presents the results of research, and an objective assessment of the effectiveness of this type of training for students on the basis of the Tashkent University of Information Technologies named after. Muhammad al-Khwarizmi, which allows us to identify promising methodological directions in the preparation of a highly qualified technical specialist.

Keywords: competence of professional activity, distance learning, computer engineering, methodological aspects.

INTRODUCTION

The variety and complexity of modern knowledge and working conditions oblige higher education to make more significant adjustments to the training of specialists. The most important part of this process is the independent work of students in a distance learning format, which serves as the basis of higher education. In connection with the rapid updating of scientific and technical knowledge and social changes, there is a need for self-education and regular updating of professional knowledge in a distance format, as well as the transition from the "Education for Life" program to the "Education for Life" program. The high dynamism of the modern business world, continuous and significant changes in technologies in the labor market and sales in general and computer technologies in particular, as well as the formation of a single information space and the growth of demand for technical specialists affect the nature of the requirements for the quality of technical education.

On the one hand, the task of personnel training becomes the main goal of the educational logic of a special university, which requires specific mechanisms for managing the process of professional development of students, on the other hand, the creation of such mechanisms is hampered by insufficient development of scientific knowledge about the conditions for developing the professional competence of a future specialist.

The decree of the President of the Republic of Uzbekistan "On measures for the further development of the higher education system" noted the following:

It is extremely important to ensure the successful implementation of the Program that in the process of its development, each higher educational institution of the republic has established partnerships with leading specialized foreign scientific and educational institutions of the USA, Great Britain, the

Netherlands, Germany, France, Italy, Russia, Japan, South Korea, China and other countries. On this basis, it is envisaged to attract annually at least 350 foreign highly qualified teachers and scientists to the educational process in universities [1].

Also in this resolution it is noted that in order to strengthen the scientific potential of higher educational institutions, to strengthen the integration of university and academic science with the real sector of the economy, educational and research organizations that carry out applied and innovative research and development work carried out on orders from enterprises, Until January 1, 2022, they are exempt from paying corporate income tax, single tax payment, value added tax and mandatory contributions to state trust funds.

PROBLEMS OF METHODS OF TEACHING SPECIAL DISCIPLINES IN DISTANCE LEARNING FOR THE DEVELOPMENT OF PROFESSIONAL COMPETENCE OF GRADUATES

The most important tasks for the further improvement and integrated development of the higher education system are the following:

- . establishment by each higher educational institution of the country of close promising partnerships with leading specialized foreign scientific and educational institutions, widespread introduction of advanced pedagogical technologies, curricula and teaching materials based on international educational standards into the educational process, active involvement of highly qualified teachers and scientists from foreign educational institutions-partners in scientific and pedagogical activities, conducting master classes, refresher courses
- . formation of target parameters for training personnel with higher education, optimization of areas and specialties of training in higher educational institutions,

taking into account the prospects for the integrated development of regions and sectors of the economy, the needs of implemented territorial and sectoral programs, etc.

All this directly indicates the close relationship of the studied material with the real needs of the modern economy, and also indicates the need for the development of professional competence of students. To strengthen the scientific potential of higher educational institutions, to strengthen the integration of university and academic science with the real sector of the economy, educational universities need to carry out applied and innovative research and development work.

All this directly indicates the close relationship of the studied material with the real needs of the modern economy, and also indicates the need to develop the professional competence of students.

The relevance of the topic “Methodological aspects for the development of professional competence of students in the direction of «computer engineering” is due to scientific and technical progress, where there is an ever-increasing flow of new information, the widespread creation of computer networks and the creation of databases, as well as the automation of all spheres of human activity.

It becomes vitally important for the training and self-study of new knowledge and skills in the field of information technology to become permanent components of the professional competence of university graduates. Advanced information network technologies and professional training tools created on their basis become intellectual partners of every student of a technical university. Due to the versatility and variability of the types of activities that are performed by technical specialists, knowledge, skills and abilities become outdated extremely quickly.

Graduates of universities must have professional competence, expressed in the ability to work with various sources of information, databases, software applications in a modern computer environment, analyze tasks using analytical information systems, develop a new policy for the use of information technology, organize electronic document management, if necessary, manage an enterprise based on information systems.

The object and subject of this work is the management of the educational process at the university as an object of project work, the process of improving the efficiency and quality of education, information and communication technologies, electronic educational systems, software and hardware, concentration methods used to improve the efficiency and quality of the higher education system, received as the subject of design work. *Object of research*: the process of professional training of students of a technical university, components of the professional competence of an engineer as a prerequisite for the formation of tools for the development of professional competence of a

technical employee. *Subject of research*: means of forming the professional competence of a future technical specialist, tools that ensure the professional development of personnel.

The practical significance of the chosen topic. In the modern world of the information space, it is necessary not only to own various technologies, but also to be able to manage them, which is impossible without deep knowledge, skills and abilities in the field of computer networks and databases. The issues of training highly qualified specialists, the use of various teaching methods, including methods for distance learning, the formation of information culture and information armament, have received wide coverage in scientific works.

There is a social forecast according to which human civilization should move to a new qualitative state, characterized by the fact that information will become the main product and result of labor. The problem of developing such a system of professional training that would contribute to the development of students' thinking, readiness to adapt to the professional environment, ultimately ensuring the competitiveness of graduates in the labor market, becomes urgent.

That is why the current state of the educational process includes a distance format and requires solving the following tasks:

- . first, it should be aimed at developing professional competence through the use of modern information tools;
- . secondly, for the formation of the professional competence of future graduates of a technical university, studying in a distance format, it is necessary to adjust the curriculum;
- . thirdly, the intensification and individualization of the learning process based on the use of computer technologies should affect each discipline;
- . fourth, the process of developing a methodology for diagnosing individual differences in students is being updated to create a psychologically comfortable educational environment.

The goals of distance learning imply a large number of hours for independent work: stimulating the intellectual activity of students by determining the goals of studying and applying the material, as well as involving students in the selection, study and organization of the material; strengthening learning motivation, which is achieved through a clear definition of values and internal reasons that induce learning; development of abilities and skills of learning and self-study, which is achieved by expanding and deepening educational technologies and techniques.

Independent work is the main form in the distance learning system. It can be individual, couple or group. On the positive side, the organization of real or virtual groups of students of mutual assistance, communicating through telecommunications, which are

a specific organizational form of distance learning, has shown itself [2].

An analysis of the methodological system of distance learning showed its commonality with the methodological system of traditional education, as well as specific characteristics that demonstrate the possibilities of interaction between participants in the educational process [3].

However, in modern higher education, the methodological equipment of information technologies of education does not keep pace with the development of technical means, which is due to the lack of integration of knowledge of different sciences: psychology, pedagogy, mathematics, cybernetics, computer science. The lag in the development of psychological and pedagogical problems is considered one of the main reasons for the gap between the potential and real capabilities of information educational technologies.

The purpose of the study of this topic: the development of a theoretically-methodologically grounded, practice-oriented concept of training students of a technical university for the use of information technologies, computer networks and databases in professional activities.

Studies and questionnaires conducted among professionals in high-tech and economic industries show that most of them feel difficulties in their work associated with not possessing computer engineering. The use of the same information systems in the management of different social or production mechanisms leads to the creation of unified methods of doing business, finance, office work, accounting and control, which implies the mandatory automation of employees' workplaces [5].

The data obtained indicate the need for informational training during their student years, which can shorten the period of adaptation to professional activity, increase their mobility and competitiveness in modern market conditions.

Due to the current circumstances, the contradictions have become aggravated: between the level of training of university graduates and the modern requirements for them from employers; between the individual differences of students (intellectual and psychological) and the mass training of technical specialists. The contradiction between the growing requirements for the quality of professional training and the ability of the faculty to manage this process needs to be resolved as soon as possible.

The question of the possibilities and abilities of the teaching staff to perceive new approaches in the preparation of students of technical specialties is relevant. The main contradiction between society's need for qualified personnel and the lack of a scientifically grounded system for training competitive specialists in the technical and economic sphere of activity and the desire to find ways to resolve it determined the problem of this graduation work and its relevance.

In theoretical terms, this is the problem of substantiating the importance of teaching modern information means in order to form the professional competence of graduates of a technical university; in practical terms, this is the problem of developing and justifying the means of training technical specialists [4].

Research hypothesis on this topic: Methodological aspects for the development of professional competence of students in the study of courses "computer networks" and "databases". Teaching students of a technical university in modern informational means of computer networks and the development of databases can contribute to the formation of readiness for independent activity in the professional sphere, which is expressed in the ability to solve professional problems in accordance with the needs of society and the requirements for graduates in market conditions.

At the same time, the absence of a system of professional training for students of a technical university, taking into account both general and specific features of representatives of this profession, reduces their competitiveness, which can be represented by professional competence. The formation of professional competence of students of a technical university becomes possible when using the following methodological aspects:

- . the process of professional training imitates a professional space adequate to the graduate's personality model
- . the content of future professional activities is structured on the basis of environmental and personality-oriented approaches, providing conditions for the formation of professional competence of future technical specialists;
- . the computer environment includes students in the professional space, contributing to the development of professional competence and shortening the time for adaptation to work;

The research results are formulated with the following points:

1. Conceptual and procedural foundations of professional training of students in a technical university have been developed
2. Developed indicators for assessing the effectiveness of the system of training students of a technical university for professional activity by means of information technology.
3. The essence and structure of the key concept of "professional competence" of students in a technical university is revealed.
4. The pedagogical conditions that contribute to the successful implementation of the system of professional training of students of a technical university by means of distance information technologies are revealed.
5. The indicators of the effectiveness of the introduction of computer remote technologies into the educational process, taking into account the specifics of the activities of specialists in various fields, have been determined.

CONCLUSION

The basis for the formation of a graduate's professional competence is the understanding of its essence as an integrative education of the individual, the structure of which is determined by the specifics of the qualification portrait and includes emotional-volitional, motivational and technological components developed by information technology. The peculiarity of the selection of these means lies in the fact that the content of future professional activity is structured on the basis of approaches expressing the conceptual logic of the organization of technical education at the university.

The system of professional training of students of a technical university should integrate content that imitates the conditions of future professional activity on the basis of the principles of systematicity, continuity, interdisciplinary relations, modularity, professional significance, differentiation, as well as forms and methods conditioned by the logic of the development of professional competence.

The readiness of students to use modern information tools serves as the goal of professional training of technical specialists.

The research is based on: experience of teaching activities in training technical personnel; experience of many years of work at TUIT, experience of advanced training at the State University "Dubna" on the basis of the course "Modern Information Technologies in Education". The sample for the experiment consisted of: students, graduates, specialists and teachers of the Department of Information Technologies and Computer Systems of TUIT.

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