

TODAY'S SITUATION AND ANALYSIS OF THE PROBLEM OF DEVELOPING PROFESSIONAL COMPETENCES OF MINING STUDENTS

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ABSTRACT

In this article, the problems of forming the professional competence of students through the implementing informational and innovative technologies in education in Uzbekistan, some opinions about the problems and solutions in implementing innovative technologies in formation of the professional competence of students in mining are described. Some results of the scientific research conducted in this sphere are mentioned. The use of modern information and innovative educational technologies in formation of the professional competence of mining students, the implementation of the proposed experimental program and the introduction of innovative technologies in this sphere as well as the educational results lead to a great improvement and students satisfaction. By using this experimental program based on innovative teaching methods and technologies, students can be involved in the educational process, possess their professional competencies and use them practically in their future professional activities. Although there are challenges associated with the usage of innovative technologies in teaching with the experimental program, it is possible to implement the experimental program with the help of innovative educational technologies, also, best practices such as teacher training and continuous support.

Keywords: Competence, education, innovation, technology, program.

INTRODUCTION

The professional qualification of future experts in the mining sector is determined by his personal qualities, including professional competences. Professional skill of specialists helps for the efficiency and productivity of work in different fields of industry. Specialists preparation scientific in terms of analysis to do, study activity the results forecasting and his the most efficient methods stay, qualified personnel preparation on demand suitable will come. Today's training of personnel based on the competence approach, the formation of the professional competence of students through the introduction of modern information and innovative technologies into education is one of the most urgent issues. In this regard and a number of scientific researches are being conducted to develop didactic mechanisms for ensuring competitiveness.

MAIN PART

Today, highly qualified specialists are being trained in Uzbekistan, where a great attention is paid to the issues of professional competence. In higher education of Uzbekistan, the world experience in modernization, teaching and educational methods as well as their solution in future personnel training are taken into account.

The problems of formation of professional competences of students through the introduction of information and innovative technologies into education in our country were researched by G. Abilova, M. Allamberganova, U. Nasritdinova, Kh. Turakulov, A. Shodiev, A. Hayitov, and others. It was studied by such scientists as Dr. Biljana, M. Nakazniy, N. Elashkina, O. Zvereva, V. Kuklev, N. Omarova, V. Salnikov from the countries of the Commonwealth of Independent States (CIS) and foreign countries.

However, formation of professional competence of mining students on the basis of teaching "Information technologies in technical systems" in high educational institutions has not been specially researched. This requires conducting scientific research on the formation of professional competence of mining students on the basis of teaching "Information technologies in technical systems".

In the Competence-based educational process, in the personnel training plays a great role as the main tools of targeted training of students for self-education and development. As a result, the student learns to design independently and realizes his life and professional tasks. Therefore, the modern high-quality result of education is a pre-selected composition of certain competencies reflected in the educational model based on competence, corresponding to the consumer order, social order. Accordingly, the model of specialization in personnel training in the mining sector is not only the main indicator of the quality and result of education, but also the main factor for determining the quality characteristics of the composition of the competency-based education system. A certain set of knowledge, abilities and skills, called competencies, should be specially defined in programs and curricular as expected results to be mastered by students, and the professional competencies of students should be formed by introducing information and innovative technologies into education.

In the training of personnel in the field of mining, there may be difficulties in the introduction of innovative technologies in the formation of the professional competence of students. Some of these challenges include cost and infrastructure requirements, as well as training needs. However, these challenges can be solved by training and support of faculty and students, and careful planning and implementing of the implementation process. Also, there are several advanced methods of introducing innovative technologies in the formation of professional competence of students in the training of personnel in the field of mining. These include, trainings for teachers, supporting teachers and students, using pilot programs and testing new technologies before full implementation [1].

In the curriculum of the course "Information technologies in technical systems" which was reviewed by the Council of the Navoi State Mining and Technologies University, and registered with the date of the 8th OMAT, August 29, 2023, it is pointed out: The goal of teaching science is to learn the basic principles of information formation, storage, processing and transmission. To make students aware of computer capabilities, to teach methods of communication with a computer, and guide them to solve various problems with the formation of modern informational thinking and scientific outlook. In the process of teaching this subject, the student communicates with modern computers, using the operating system and shell programs, mastering its technical capabilities, creating algorithms and creating programs for solving various practical problems. Moreover, he/she must learn to use software tools and application packages. In particular, it has been shown that a student should acquire the skills of applying computer capabilities and programming the issues and problems to be solved in his specialty.

This science program consists of two modules and includes the following as main topics: Module 1: The main tasks of ICT in technical systems and its application in network sectors, in which the subject and tasks of information technology science in technical systems, Digital technologies and digital economy, Intelligent control systems, Multimedia technologies, Modern automated design systems and their application in technical fields, Mathematical modeling, implementation of numerical analysis methods in systems. Computational experiment, Geoinformation systems, Network database. cloud technologies, Ensuring information security in technical and technological processes, Electronic government topics are included in Module 2 -Modern Programming Technologies is now called Modern Programming Technologies. Object-oriented programming languages. The main constructions of the C++ programming language and features of system application, Logical programming technology, Programming using arrays, Application of functions and modules in programming, Application of graphics and multimedia in programming systems are included.

Scientific research shows that with the development of current Internet technologies, it is not necessary to teach programming languages in the form of classroom training, because there are many ready-made software tools in this regard, and the student can easily read and learn independently. We recommend mining students to learn the usage of ready-made software tools and practical software packages, instead of topics given on programming languages in module 2, modern automated design systems and geoinformation systems in module 1 are more theoretical and practical-experiential.

In this way, time will be saved, and by using ready-made software tools and innovative educational technologies, the subjects are necessary for the formation of professional competences of students and the achievement of practical results in the future training of personnel in the field of mining are studied more deeply and widely. Today, this program is being used as a pilot program and is showing good results as an experimental program.

RESULTS

Scientific research shows that the use of practical software packages used in the field of mining in the lesson plays a key role in the formation of the professional competence of students in personnel training and gives effective results.

Based on the proposed experimental program, the following modern information and innovative educational technologies are used to teach the subject "Information technologies in technical systems" and to form the professional competence of mining students - Mobile education technology: Eclipse, Android SDK Mobile education supports teaching or learning on mobile phones, PDAs or tablets. Technology of practical software packages: learning to solve engineering problems in Matlab, Maple, MathCAD programs. Graphic modeling technologies: 3D Max, KOMPAS, Solid Works, AutoCAD, Solid Edge software packages are studied. Currently, a number of common CAD/CAE/CAM systems, using 3D models. Digital technologies (tools such as Blockchain, Bigdata, IoT, Data Science). Also, interactive methods of teaching: "Cluster", "Sinkway", "BBB", "Brainstorming", "Projecting", "Research", "Case study", "Problem-based learning", "Venn diagram", " Dialogue", "Webinar", "Fish skeleton" and others. The world's leading universities have widely implemented these modern information and educational technologies in their educational processes.

Thus, in modern education, the use of innovation, more precisely, the usage of pedagogical and educational innovations, is getting really important. Consequently, globalization and the informatization of society require the use of effective methods and tools in the educational

process in non-traditional forms, as well as an innovative approach to the formation of educational materials and their practical use [2].

CONCLUSION

The implementation of the experimental program that we offer in the formation of the professional competence of students in the training of personnel in the field of mining and the introduction of innovative technologies in this regard will lead to the improvement of educational results and the satisfaction of students. By using this experimental program based on innovative teaching methods and technologies, students can be more involved in the educational process, form their professional competences and use them practically in their future professional activities. Although there are challenges associated with the usage of innovative technologies in teaching with the experimental program, it is possible to implement the experimental program with the help of innovative educational technologies, also, best practices such as teacher training and continuous support.

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