ACADEMICIA

ISSN: 2249-7137 Vol. 11, Issue 4, April 2021 Impact Factor: SJIF 2021 = 7.492

ACADEMICIA
An International Multidisciplinary Research Journal
(Double Blind Refereed & Peer Reviewed Journal)

DOI: 10.5958/2249-7137.2021.01274.X

PROFESSIONAL COMPETENCE OF FUTURE ENGINEERS IN HIGHER EDUCATION INSTITUTIONS SOME ASPECTS

Avazov J.D*

*Lecturer,
Termez State University Termez,
UZBEKISTAN

ABSTRACT

The article describes the content of some aspects of the professional competence of future engineers related to the application of intellectual abilities in higher education institutions. The practical results of this process are clearly reflected in all spheres of our lives today, and most importantly, in the consciousness, aspirations and actions of our people. In particular, the goal of the national training program is to radically reform the education system, to free it from the ideological stereotypes of the past, to create a national system of training qualified personnel at the level of developed democracies, meeting high spiritual and moral requirements. As one of the general technical disciplines, "Descriptive Geometry and Engineering Graphics" is the main discipline in the training of engineers. Each of its sections contains materials related to the content of other disciplines and involved in their study.

KEYWORDS: *Youth, Education, Upbringing, Future, Professional, Engineering Graphics, Computer Graphics, Design, Competence, Intellectual, Integration, Intellectual, Creative, Cognitive, Future, Ability, Efficiency.*

INTRODUCTION

Educating young people, educating them, educating them as worthy personnel for the future has always been one of the top priorities of every state. In our country, too, such work is constantly in the spotlight of the leaders of our state - we can say the same truth. The Action Strategy on the five priority areas of development of the Republic of Uzbekistan, adopted on the direct initiative and under the leadership of President Sh.M. Mirziyoyev, has launched a new stage of development in the republic. The practical results of this process are clearly reflected in all spheres of our lives today, and most importantly, in the consciousness, aspirations and actions of

our people. Particular attention is paid to the improvement of the education system, which is one of the priorities of the fourth strategy of action - the development of the social sphere.[1]

In the meetings and speeches of the head of our state during his visit to each region, in various meetings, in his speeches and conversationseducating a harmoniously developed generation, following a healthy lifestyle of young _____

1. Decree of the President of the Republic of Uzbekistan. On the strategy of further development of the Republic of Uzbekistan. Tashkent, February 7, 2017 PF - 4947

people living issues are seen as a topical issue on the agenda is coming. As the President said: "If we do not bring up our children properly, if we do not pay attention to their behavior every day, every minute, if we do not teach them science, if we do not find a decent job, we will lose this deposit."[2]

It is known that the laws "On Education" and "On the National Training Program" also set the task of training highly qualified specialists in our country who can meet the requirements of world standards. In particular, the goal of the national training program is to radically reform the education system, to free it from the ideological stereotypes of the past, to create a national system of training qualified personnel at the level of developed democracies, meeting high spiritual and moral requirements. In the current period of gradual reforms in the field of education in our country, based on the requirements of the National Training Program, there is a need to put into practice the existing conclusions and recommendations to improve the effectiveness of education.

In particular, one of the main goals of the "National Training Program", which is being implemented in three stages, is to form competitive, active and creative individuals who can adapt to the transition to a market economy. Therefore, the Decree PF-6108 "On measures to develop education and science in the new period of development of Uzbekistan" signed by President Islam Karimov on November 6, 2020 also states that "the country is able to come up with new initiatives and ideas for development. Training of a new generation of high intellectual and spiritual potential, formation of skills and knowledge necessary for graduates of educational institutions to become modern professionals "is one of the main directions in this field.[3]

This issue, along with other disciplines, is a key task in teaching technology. This requires the effective and rational use of teaching methods in the teaching process, as well as the improvement of these methods, the search for new ones, increasing the effectiveness of technology education. Therefore, the main issue in the field education today is the training of qualified teachers who are well versed in the methods and forms of education and can easily apply them in practice. Because the teacher's personality and his activity are of special importance in educating students, directing them to professions. Consequently, nothing else can overwhelm the teacher's open communication-style learning process. Therefore, improving the quality and effectiveness of education is an important factor for the training of qualified teachers, to improve their professional skills.

Radical changes in all spheres of society require the search for and use of effective technologies for the training of highly qualified personnel. Success in the economic development of the country is inextricably linked with the quality of training engineers for various purposes. In such conditions, professionals in professional and other fields of activity as a creative person The

formation is the main task. The qualification of an engineer is characterized by the ability to creatively solve problems of creating new equipment, developing modern high technologies, optimizing the production and operation of technical facilities.

In our country, these needs are strengthened by a number of factors. A set of problems related to the ability of people to use their mental and professional abilities in rapidly changing environments has been identified. *(A set of problems related to adapting people to rapidly changing conditions to apply their intellectual and professional abilities has been identified.)* The process of transformation of the traditional mechanisms of development of society expands the range of issues related to the change in the emphasis on priorities in the social, cultural, practical policy of the state. Depending on these situations, the quality of education is the focus of leading educators and society as a whole.

The situation has in many respects set new requirements for the training of highly qualified, competent specialists in mechanical engineering, energy, production technology, construction and other fields. Scientific substantiation of the integrity of the higher education system is required, the importance of optimizing various forms of organization of the educational process, the development of criteria for assessing the competence of future professionals in the profession is growing. In a changing society, modern trends in economic development place new demands on the field of professional qualities of the specialist.

The main reasons for this process are as follows: education does not respond to the challenge posed by a changing economy. As a result, society is dissatisfied with the quality of education; increasing the independence of educational institutions and teachers is not always positive; normative-legal uncertainty often regulates relations in the field of education in the opposite way. Laws and bylaws change frequently; Often, innovative innovations do not improve the performance of educational institutions, but rather worsen them;

In recent years, the active participation of our country in the integration process, joining the Bologna process, the organization of the educational process of 43 higher educational institutions of the Republic in the credit-module system as a test requires effective and mandatory quality control. An effective system of support is needed in the training of qualified professionals. These include: collecting data from personnel consumers; order formation in personnel consumers; selection of educational paradigm; selection of parameters for evaluating learning outcomes; predict the goal; comparison of expected results with existing ones, etc.

The transformation of educational technologies and methods of organization of educational activities, depending on the changes in the forms and technologies of the educational process, the criteria for assessing the quality of training of engineers, provides ample opportunities for pedagogical researchers, and the gradual implementation of forms. The teaching process involves directing students to what unites and forms the basis of the professional competence activities of future engineers. Such an order of society required pedagogical research to identify key changes in the development of professional competence of future engineers during their studies at the university. General engineering training at a university can help solve these problems. Issues of professional training of future specialists in the higher education system SI Arkhangelsky, VP Bespalko [8, 111], VA Slastenin, UN Nishonaliev, AA Abdukadirov, AR Khodjaboev, R . It forms the basis of scientific research of such scientists as Khasanov, N.Saidahmedov, K.O.Tolipov, SSBulatov. Graphic training as a basis of professional training in

the system of higher technical education R.Khorunov, Yu.Kirgizbaev, K.Kobuljanov, Sh.Muradov, J.Yodgorov, A.Akbarov, I.Rakhmonov, P.Odilov, R. Scientists such as Ismatillaev, DF Kuchkarova, TJ Azimov, E. Sobitov contributed to the development of the theory of graphic sciences (in particular, descriptive geometry) with their textbooks and manuals. Pedagogical scientists from many independent Commonwealth countries, including A.D. Botvinnikov, D.M. Borisov, E.I. Valpas, K.Ya. Vazina, A.A. , V.A.Xerver, G.F.Gorshkov, E.A. Gnatishina, N.M. Kathanov, Yu.F. Kathanova, V.V. Karpov, A.F.Kaseev, A.S.Meshcheryakov, S.G.Marfin, V I.Nilova, A.A. Pyatyshkin, et al. G.A.

To the problems of optimizing teaching practice, developing creative thinking in the process of graphic preparation. Ivashchenko, D.V.Matveev, L.G, I.A. Roitman, S.A. Frolova, N.F. Chetveruxin, A.A. Chekmarev, V.I. Dedicated to the works of Yakunin and others.

However, descriptive geometry; engineering graphics; basics of design; the problems of studying engineering and computer graphics and other geometric-graphic sciences have not been sufficiently analyzed in relation to the teaching of general sciences, taking into account the characteristics of future professional activity. It should be noted that quantitative and qualitative criteria for assessing the level of professional suitability at the stage of mastering the graphic sciences, which combine the organizational - pedagogical, methodological and technological bases of the educational process, have not yet been developed.

The above considerations lead us to the need for theoretical substantiation and experimental verification of the effectiveness of the system of general engineering-graphic training of university students, which is especially relevant in the context of high demand for the quality of professional competence of future engineering training.

Generalization of practical experience of students' graphic training and analysis of scientific-methodical work in the process of graphic training of highly qualified future specialists **shortcomings and contradictions** allowed to determine. **First:**

- Over the past decade, the results of numerous studies on the preparation of engineering graphics by professors and teachers of higher education institutions have been published. They addressed the problems of general engineering graphics focused on the chosen profession;

- There is no integrated methodological theory of the formation of professional skills in the field of engineering work and education of production technologies;

- There is no research that can increase the motivation in the study of descriptive geometry and engineering graphics to ensure a high level of use of graphic knowledge in the course work and graduation work;

- Problems of graphic training are not analyzed in the process of adaptation of young professionals to practical, design and production activities.

The most important feature of the level of professional competence of future engineers during their studies in higher education is the quality of graphic training. This requires the creation of pedagogical conditions in which students can ensure the effectiveness of graphic activities, taking into account modern requirements.

In the design and implementation of the teaching process of "Drawing Geometry and Engineering Graphics" it is very important that the knowledge gained is taken into account at a higher level of education, which is especially relevant in this regard. all the subjects studied in the disciplines are highly interdependent.The shortcomings in the preparation of the previous topics of the course begin to show immediate negative results in the subsequent topics of teaching.

The development of new science-based forms of improving professional competence in the teaching of graphic geometry and engineering graphics in higher education is based on the analysis of the purpose, structure and interrelationships in the education system. Recently, the following trends have emerged:ўқув ахборот ҳажмининг ўсиши;

• significant limitation of study time;

• complicated educational content.

• Significant limitation of study time;

The integrity of the level of education and the implementation of new methodological methods in the structure of teaching graphics allows the science of "Descriptive Geometry and Engineering Graphics" to be integrated into the general system of training. The formation of intellectual, creative and cognitive abilities of students plays a leading role in teaching based on the principles of continuity of educational materials.

Consistency, harmony of the nature of educational and cognitive activity of students in the forms and methods of teaching are currently used by leading specialists - teachers, and the issues of professional training of future specialists UN Nishonaliev, AA Abdukadirov, AR Khodjaboev, R. . Khasanov, N.Saidaxmedov, Q.O.Tolipov, S.S.Bulatov; It forms the basis of scientific research of scientists from the CIS countries, such as SI Arkhangelsky, VP Bespalko, VA Slastenin.

After in-depth study of qualification requirements, curricula, sample and working programs, 5310600 - Territorial transport systems and their operation, 5340600 - Operation of transport facilities, 5340800 - Roads and airfields, 5320300 - Technological machinery and equipment and other specialties After analysis, we came to the following conclusion: intensive targeted training of specialists in technical universities is based only on the traditional curricula that we use, cannot be based on business plans. It seems that the interdisciplinary connection in the professional orientation of education has remained. Each department teaches students their subject in higher education, and none of them teaches them to apply in a comprehensive way the knowledge they have acquired in solving the professional problems facing university graduates in life.

In the subject of ‘Descriptive Geometry and Engineering Graphics’, almost all subjects are traditionally described at the same level, and it is difficult for students to know exactly what they need to master in order to successfully pursue their studies and subsequent careers. Apparently, we are training “knowledgeable” professionals, but not “talented” professionals. Students view the final controls as a benefit to themselves. In the minds of many of them, the notion of passing knowledge and skills, rather than passing tests and trials, dominates.

In order to eliminate these contradictions, we tried to analyze the experience of designing, conducting and researching the educational process on the example of the subject "Descriptive Geometry and Engineering Graphics" for students of specialties. This process reveals new aspects of the importance and place of descriptive geometry and engineering graphics in professional development, allows to study the interdependence of this discipline and the special disciplines of the program, including the graphic part, and improves the professional competence of future engineers.

As one of the general technical disciplines, "Descriptive Geometry and Engineering Graphics" is the main discipline in the training of engineers. Each of its sections contains materials related to the content of other disciplines and involved in their study. Therefore, in the process of studying the subject of descriptive geometry and engineering graphics, it is very important to ensure an integral connection between this subject and the future professional activities of students in the senior courses of the University. Such coordination increases the importance of the subject of "Descriptive Geometry and Engineering Graphics", arouses interest in reading and studying the chosen profession.

In our research, we relied on the experience gained in teaching different subjects in secondary schools, vocational schools, technical schools and colleges with different specialties, universities in different disciplines. At the same time we have I.Rahmonov, Sh.A.Abdurahmonov, T.D.Azimov, N.J.Yodgorov, K.A.Zoyirov, R.Q.Ismatullaev, P.O.Odilov, M.H.Pirimjarov, IT Rakhmonov, EI Ruziev, and foreign scientists: James D. Bethune, GS Phull, HS We referred to the experience reflected in the works of Sandhu [16, 164], R.B.Gupta, N.D.Bhatt, presented to a certain extent in their scientific and methodological work. In the research of TV Chemodanov, the concept of "professional graphic training" is very interesting and sufficiently expressed - this allows the training professional to solve educational and professional problems using geometric modeling methods of flat and three-dimensional images and to perform them adequately for future training. This graphic cycle is a combination of geometric, engineering-graphic, information-technological, methodological knowledge, skills and abilities in the field of general engineering sciences, there is no methodology for selecting material that actively enhances the student’s professional interest. The existing forms of organization of the educational process in descriptive geometry and engineering graphics do not fully correspond to the potential for solving problems in teaching this subject, with an emphasis on the specialty under study.

One of the ways to overcome these contradictions is to look for new content and forms of teaching that fully realize the potential of teachers and students.

The problem under consideration is relevant both in terms of preparing students for educational activities in the departments of general engineering and graduate, as well as in terms of increasing the efficiency of the educational process and increasing the mental activity of students.

Second:

The leading activity of the student is his educational and cognitive activity, and for the teacher - educational work. All of this requires the teacher to think deeply and reflect on the didactic support of preparation for lectures and practical sessions.

Today it is necessary to further democratize the society, to raise the activity of higher technical education institutions to a new level of quality in the conditions of wide opportunities for the activities of private higher education institutions. This should be reflected, first of all, in the rejection of the principle of uniformity in education, in the organization of different types of educational institutions, in the creation of new curricula and textbooks, the content of which corresponds to the field of higher education, in the revision of teaching methods and tools.

Modern trends in the development of higher education institutions pose a number of new theoretical and practical problems for professors and teachers working in technical universities. One of them is the reflection of the integration and differentiation of knowledge in the content, essence and activities of education.

This problem cannot be solved without taking into account the results of the interdependence of the studied disciplines. scientists R.H.Djuraev, N.J.Isakulova, M.X.Lutfillaev, I.V.Makhukhina, A.Musurmonov, M.Q.Muxliboev, B.N.Oripov, A.A.Salomov, N.I .Taylakov, N.S.Fayzullaeva, N.I.Hurboev; and others studied in the works of educators.

The future engineer must be able to apply a set of knowledge in various disciplines in their professional activities. In the scientific and pedagogical literature, the concept of "interdisciplinary integration" is vaguely interpreted, thus defining its various roles and place between pedagogical categories (categories). According to EB Shoshtaeva, interdisciplinary communication is a unit of professional activity, reflecting the continuous and integrated phenomena, represents the process of community of educational sciences E.V.Perexosheva defines interdisciplinary integration as a process of combining educational sciences on the basis of cognitive (knowledge) and technological problems in the light. For us, interdisciplinary integration represents a set of educational goals, principles, and meanings in creating a broad-based interaction of all academic disciplines. Therefore, professional competence begins to develop in the first stage of student education, aimed at giving senior students quick optimal decisions in any complex professional situation, in which the formation of skills to perform certain actions independently can be achieved through interdisciplinary communication.

In short, higher education achieved faster and better results if it abandoned less effective forms of teaching. Research based on the current reality is needed. One of the tools that have a positive impact on the training of professionals is to increase their interest in the profession.

REFERENCES:

1. Decree of the President of the Republic of Uzbekistan. On the strategy of further development of the Republic of Uzbekistan. Tashkent, February 7, 2017 PF - 4947.

2. 2.Mirziyoev Sh. Let us be more united and work resolutely for the fate and future of our country. // "Xalq so'zi" gaz., 2017, June 16.

3. Decree of the President of the Republic of Uzbekistan "On measures to develop education and science in the new period of development of Uzbekistan." T., November 6, 2020 PF-6108

4. Laws of the Republic of Uzbekistan "On Education" and "On the National Training Program". // - T .: Sharq, 1997.

5. 5.Azizxo'jaeva N.N. Pedagogical technology and pedagogical skills: Textbook. - T .: TDPU, 2003. - 174 p.

6. 6.Babanskiy Yu.K. Teaching methods in modern general education school. T .: Teacher, 1990. - 232 p.

7. 7.Ball G.A. Theory uchebnyx zadach: Psychologo-pedagogical aspect. M .: Pedagogika, 1990. - 184 p. 120.

8. 8.Bespalko V.P. Slagaemые pedagogical technology. M .: Pedagogika, 1989. - 192 p.

9. 9.Ziyomuhammedov B. Advanced pedagogical technology: theory and practice. T .: Abu Ali Ibn Sina Medical Publishing House, 2001. - 78 p.

10. 10.Yuldashev J.G'., Usmonov S.A. Fundamentals of pedagogical technology. T .:Teacher, 2004. - 236 p.

11. 11.Golish L.V. Active methods of education: content, selection and implementation. Methodical manual. T .: O'MKHTRI, 2001. - 128 p.

12. 12.Chekmarev A.A. Nachertatelnaya geometry and cherchenie: Ucheb. for stud. vyssh. ucheb. zavedeniy. - 2-e izd., Pererab. and dop. - M .: Humanities. izd. VLADOS center, 2003.- 472 p.

13. Yurin V.N. Kompyuternye teknologii v uchebnom protsesse injenernogo obrazovaniya // informatsionnye teknologii. 1999.-№ 3 - p. 45.

14. Yakovlev E.V. Upravlenie kachestvom obrazovaniya v vysshey shkole: teoriya i praktika. - Chelyabinsk, 2000.- 427 c.

15. G.S Phull, H.S. Sandhu. Schools for the 21st Century. - San Francisco, 1990. - P.164.

16. Guy R. Lefrancois. Psychology For Teaching. - USA, 1991.- P.449.

17. Farfieva K. A. Social Media as a factor in formation of scientific thinking in youth. European Journal of Research and Reflection in Educational Sciences. Vol. 8 No. 10, 2020. – Pp. 52-56.