

THE PROBLEMS OF PREPARATION COMPETENT TECHNICAL SPECIALIST IN THE REPUBLIC OF KAZAKHSTAN

Zhanbirov Zhumazhan Ginayatovich, Doctor of Technical Sciences

Kantarbayeva Shyryn Myrzahanovna, Doctor of Economic Sciences

Tursymbekova Zakira Zhambylovna, PhD. associate Professor

Smagulova Aigerim Sovethanovna, PhD. associate Professor

Almaty Dzhandosova 60. Central-Asian University

Abstract

The basic task of education is training of specialists who are capable for effective participation in the industrial-innovative development of the country. In connection with it qualitatively new approaches of training and the creation of effective education system directly effect on development of a technical science innovative processes in republic and integration of domestic scientific researchers at world level.

President of the Republic of Kazakhstan Nursultan Nazarbayev emphasized that "With the growth of economic indicators increased attention should be paid to improvement of cultural and educational level of our society, the formation of a new intellectual Kazakh nation.

To assess the existing problems of improving the quality of training of competent technical staff in the universities of Kazakhstan have been used such methods as empirical research, analysis of engineering and production problems in these sphere. The solution of tasks aimed at improvement of the training of the modern national and competent engineers in the technical colleges, whose implementation is possible, only through a deep theoretical understanding of the national mentality.

Conclusion. The system of technical higher education should not only provide one of the main components of the innovation economy - human, but also fulfill the role of a bridge linking education, science and production in all sectors and regions of the country. Therefore the main task of meaningful training of engineers is to describe the processes of studying of new knowledge and changes in thinking, which is the ability to make independent judgments and enables as to form our own point of view.

Keywords: higher professional education, modernization, innovation, engineer

Introduction

Positive changes in the social, economic and political life of society on the eve of the third industrial revolution has created a growing need for highly qualified personnel. In his message, President N. Nazarbayev said: "A key condition for the success of the new policy should be supported by staff". [1] Kazakhstan school to enter into international education unit, supported the integration of the Bologna process (member since 2010), the main objectives of which are contribution and improvement of the international competitiveness of higher education, mobility, training and employment of citizens. The new law "On Science" is a historic landmark in the organization of the development of fundamental and applied research and it requires training of specialists of the new formation, which should be carried out jointly, by merge of education-science-production.

Efficiency of formation of the engineering staff has significant reserves for improvement, as knowledge has been preserved; there is human capacity and technical resources, and the desire of the state to its accelerated development. However, there are problems in their preparation. Thus, there is no clear interdisciplinary organization of the content of training, especially in schools, where unpeculiar specialties have been opened, where connection with the production has been lost, due to lack of scientists, which could conduct as equal discussion with experts of the enterprises even in such a matter as the creation of a modern material and technical base of educational institutions. Therefore there is a strong need to strengthen the practical component of education.

Today there is a significant time lag in training of specialists on specific, key, production processes, i.e. it slightly promotes the modernization and re-equipment of the leading companies. To accelerate the process of adaptation of future professionals, creation of regional training, research and production associations is required with the purposes of modern training of personnel for the innovation economy, creation and marketing of innovation. This is an important tool as the future specialist must possess certain skills of creative solutions of practical problems, and have ability to use all the new things that appear in the science and practice, constantly improve their skills and quickly adapt to the conditions of production. This, of course, would enhance the quality of training through closer cooperation of technical universities, research organizations and industry.

Feature of modern Kazakhstan's education is also its entry into the world educational space; it causes profound changes in all areas of education: in the scientific basis, in the function, content, technology, results, i.e. it is a question of change of the educational paradigm. Knowledge-model of education is superseded by competent model, which is based on action and promote versatile development of personalities, successful in society.

There is a reorganization of system of relations between the participants of educational process in high school, from authoritarian pedagogy to student-centered pedagogy based on interaction between teacher and student. Due to the orientation on competence-based approach to education and the transition to a new generation of standards we should focus on building core competencies of engineers, that provide mobility of the individual in a rapidly changing world and professional success in the innovation economy,

The modern engineer must leave the space of knowledge and enter in space activities and life meaning, therefore offer the following goals and objectives of educational processes in high school.

Table 1. The main objectives of training in university courses on technical specialties

Purpose of the 1 course	Purpose of the 2 course	Purpose of the 3 course	Purpose of the 4 course
Identity formation, the transition from opinion to the position of self-views	To teach how to understand and analyze the subject of controversy	To teach students to methods of problem-thinking	To teach students how to pass from questionable to undisputed
Masters program		A professional manager	
To teach how to act, work and live in situations of misunderstanding		To be able to develop their own point of view and not be afraid to include a conflict of different points of view	

To achieve the above mentioned objectives modern technical university should represent an elite school, in which along with a deep professional knowledge students can receive basic training in the natural sciences, social and psychological, general engineering, socio-economic and humanitarian fields. In this case, the role of fundamental training of future engineers should be specially emphasized. It forming a methodologically systematic invariant knowledge provides the basis for further learning professional application training material, develop creativity and systems thinking, arms by methods of learning, promotes and improves the scientific world, increases the level of professional and general culture of the future expert [2] . Therefore, the main task of teaching the courses should be as follows (Table. 1).

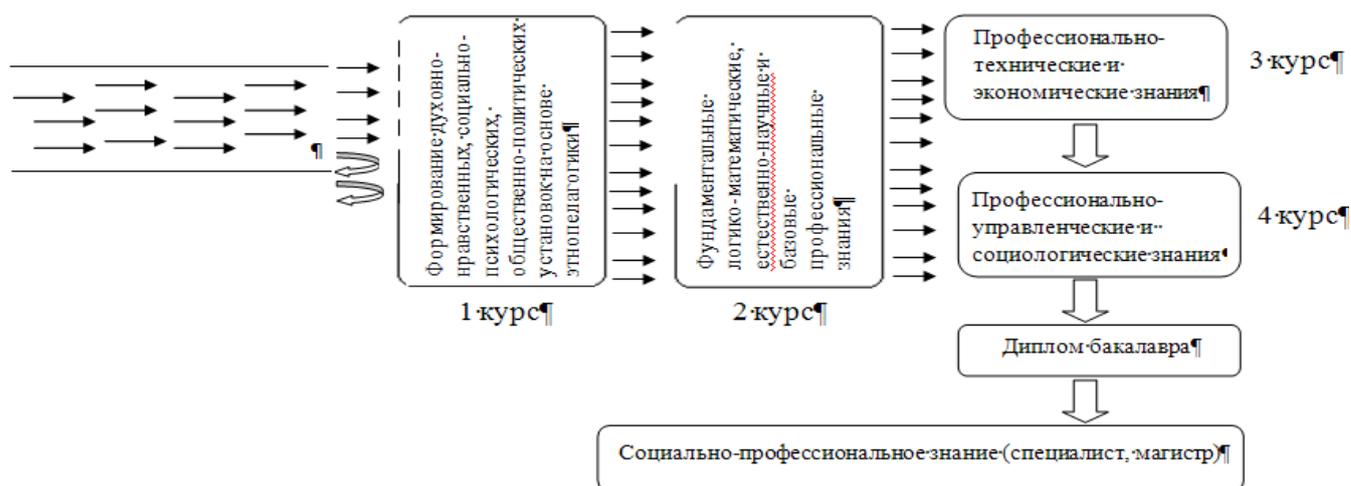


Table 1. The scheme of distribution of the main tasks of training courses for technical college degree

Improving the system of engineering education adequate to the new demands of the times it is important to know what is necessary for the training of engineers in accordance with the long-term development projects in Kazakhstan. Here, the main criterion is the successful employment of graduates, level of their salaries. It is necessary to develop and introduce a system of qualitative social standards and professional qualifications of Kazakhstan's citizens, especially the economically active population. It will mortgage a basis of socially fair wage of workers with average vocational training, and the Center for the reception of additional knowledge, increase of qualifications, will allow acquainting with new technologies and technical solutions on a regular basis.

On the other hand, the retained gap between the education sector, science and industry do not allow effectively use modern scientific equipment for research and teaching. Today there is a process of modernization of production, leading enterprises are buying high-tech equipment, which we do not have, and so many graduates of technical universities of the country are not able to work on it. That's why we should establish joint centers and laboratories, small innovative enterprises, campuses, that would constitute a practical platform for the preparation of highly qualified professionals in various industries..

Top managers and key specialists of the industry, among the requirements for young professionals have pointed out not only fundamentalization their knowledge, but also the ability to innovation, expansion of the scope of activities, the willingness to consistently self-training. Young people should possess advanced knowledge of new technologies; have skills of communication, decision-making, high degree of flexibility and ability to work with different systems of motivation and more. We have to activate the system target contract training in various industries, resume distance learning engineering staff. So there is a necessity to work out a system of interaction of technical universities with research organizations and industry. It should be based on the establishment of joint departments, training centers to prepare students for undergraduate programs and external objective independent assessment of quality of education.

Representatives of the companies recommended by the Ministry of Education and Science of Kazakhstan, and the Heads of technical universities must organize training and retraining courses for government and engineering industry workers in Almaty on the urgent issues of management of industrial and innovative projects, science, engineering and technology. In turn, the teaching personnel of technical universities should have an opportunity of an internship on the present expensive equipment of companies of Almaty and Almaty region, because direct interaction of the university and the company will allow to evaluate properly the prospects of further training of various professionals and make timely adjustments to the plans set students on a various specialties.

To improve the quality of technical training in high schools of Kazakhstan we should specially emphasize the role of fundamental training of future engineers. It provides a basis for further learning of application training material, develops creativity and systems thinking, arms methods of learning, promotes and improve the scientific world, increases the level of professional and general culture of the future specialist.

However, the effective development of the educational export of universities is undermined by several factors: poor educational infrastructure, lack of recognition of diplomas of many universities in the former Soviet Union and abroad, teaching only in Kazakh and Russian languages, etc.

For the Republic of Kazakhstan, direct investment in the creation of individual institutions, is not as actual as investments to its infrastructure - providing free access to the Internet, computerization, and creation of online platforms. For example, in Ukraine a national project "Open World", funded by private investors (\$ 700 million) acts for several years. Such mechanism of specialists training is most perspective today, as means are invested in development of mental potential that allows everyone who wishes to get education, to realize the abilities and desires, and to the state receives the high quality experts, capable to develop a national economy and actively participate in a public and cultural life. This program is accessible and attractive to all participants and able to balance the interests of society and the state in education. Involvement of the production sector in the formation of future professionals' qualifications, direct and indirect participation in the formation of educational programs - is not only an effective way of additional funding of higher education, but also a way to improve access to high quality higher education for young people, able to give impetus to the effective development of the education sector as a whole.

As you know, the Bologna process is considered as a means of implementing mobile learning. The process has a great integration potential, which will facilitate the integration of Kazakhstan universities into a uniform international educational space. However, entering the Bologna process we must take into account existing national characteristics and traditions of engineering high school.

Recently the tendency of the leveling relation to various kinds of education is tracing, which we believe is fundamentally wrong. In the early 90's of the last century, Kazakhstan has entered the period of market reforms and faced with an acute shortage of managers, economists, and lawyers. Already existing schools, and the newly emerged, including, and non-governmental responded to this demand. Their joint efforts have eliminated the deficit, but created not less a severe shortage of engineers.

Why is this? One of the reasons - the egalitarian attitude of the government, the training of engineers is fundamentally different from the preparation of the humanities or the lawyers: the need for complex, expensive equipment and for passing of practices at the industry enterprises. That is why the leading technical universities of the republic are still not able to fully master the technology of education of the Bologna process is extremely cautious about the introduction of the two-stage system for the preparation of the basic disciplines. It is simply impossible to receive necessary volume of knowledge and to run in the most complicated equipment within the limits of new offered system

We believe that the technical institutions must implement the principle of the integrity of the educational process in a single industrial-scientific-educational space. This will:

1. Establish strong connection with industry and implement the principle of "education through science," i.e., to merge the educational process and scientific research.
2. Solve the problem conformity of structure issued staff to frame structure needs of the industry. In particular, conduct targeted training, defining the contractual relationship between the administration of the enterprise, institution and the student.
3. Develop and implement a system of improvement of the professional competence of teachers of technical colleges with their practical research and teaching as soon as possible.

4. Create an optimal model of the educational process taking into account the requirements Bologna process and the requirements of enterprises to tier system of training (dual and mono-).

5. Efficient use of existing resources and attract investment capital to the educational sphere.

Ministry of Education and Science provides all the prerequisites for the solving of these and other problems, the rest depends on the ability of the first heads of technical universities to manage the available scientific expertise and physical facilities. For example, Belarus for the first time entered the list of countries with high level of human potential development, taking 64th place in the world and the first among the CIS countries, that is, and there's a launch pad for serious reform, aimed at dynamic and positive development of the economy as a whole [3].

Already now, a lot of the technical universities, including the Central-Asian University, do much for preparation of the technical experts, capable of working in a competitive environment: new curricula are developed; new specialties and specializations are opened by request of the ministries and the enterprises of real sector of economy; business schools and the centers, institutes on advanced training and retraining of personnel in new directions of a science and engineering are created, branches of universities are opened at enterprises allowing to make educational process closer to real conditions of production and to involve high quality experts of the enterprises in transfer of practical experience. And we should also note the ways in which technical education should be developed:

The creation of a system of continuous education on the basis of higher education institutions, vocational schools, vocational schools, meeting the staff needs of leading industries and improvement of management of the system of continuing technical education and training programs, including multi-level system of continuous training and retraining of management, transfer and commercialization of technology, intellectual property management, development of logistics technical colleges, institutes and centers of training and retraining;

- Increasing the efficiency of scientific research focused on the needs of the industrial complex of the republic;

- Improvements in the scientific activities of the technical high schools to meet the needs of the regional economic complex, the development of experimental and production base of technical universities.

- The use and dissemination of the integrated system of education, i.e. corporate training system, which means the theoretical training of full-time students of higher educational institutions in close connection with their work in the chosen profession at the base enterprises, scientific, educational and other institutions. This training is conducted in accordance with state educational standards, curricula of universities and labor laws. Here we can mention the need to strengthen the coordination of the Kazakh National Technical University after name .K. Satpayev and Karaganda Technical University, both basic institutions in higher and technical education of the country.

Conclusion

Economic realities require constant updating of knowledge associated with scientific and technological progress and highly competitive workforce in the context of globalization. The system of technical higher education should not only provide one of the main components of the innovation economy - human, but also act as a bridge linking the education, science and production in all sectors and regions of the country. Therefore, the main task of the content of training engineers is to describe the process of acquiring of new knowledge and changes in thinking, which is the ability to develop independent judgment to form their own opinion.

Fundamental education, remaining the prerogative of the state, can make adjustments on the applied training specialties. In this case, the provision of financial support by the private capital for scientific and theoretical search, research of deep relationship of higher education and science, the results of which can be incorporated in the relevant industry, should also have state support through tax incentives.

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