

УПРАВЛЕНИЕ ОБРАЗОВАНИЕМ

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TRAINING SYSTEM OF FUTURE SPECIALISTS: QUALITY CONTROL

Abstract. *The aim* of the investigation is development of innovative strategy of quality control training of engineers and skilled workers (hereinafter – future specialists) in educational professional organizations on the principles of social partnership.

Methods. Theoretic: theoretic and methodological analysis, polytheoretic synthesis, modeling. Empirical: research and generalization of the system, process and competence – based approaches experience, experiment, observation, surveys, expert evaluation, SWOT-analysis as a method of strategic planning which is to identify the internal and external factors (socio-cultural) of the organization surrounding.

Results. The strategy of the development of the process of quality control training in educational professional organizations and a predictive model of the system of quality control training for future engineers and workers have been created on the analysis and synthesis of a quantitative specification of the quality,

the obtained experience and success in control training of future specialists in educational professional organizations in recent economic and educational conditions.

Scientific novelty. There has been built a predicative model of quality control training of future specialists to meet modern standards and the principles of social partnership; the control algorithm of the learning process, developed in accordance with the standards (international) of quality ISO in the implementation of the quality control systems of the process approach (matrix-based responsibility, competence and remit of those responsible for the education process in the educational organization, the «problem» terms and diagnostic tools for assessing the quality of professional training of future specialists). The perspective directions of innovation in the control of the quality of future professionals training have been determined; the parameters of a comprehensive analysis of the state of the system to ensure the quality of their training on the basis of procedures for self-examination and questioning have been supported; the improving system technology to ensure the quality of vocational training have been developed; the implementation mechanism of the system of quality training control training of future specialists in the professional organization have been specified.

Practical significance. The obtained results exploitation in educational practice can improve the effectiveness of the innovative development of the quality control training system of future specialists in educational organizations.

Keywords: vocational training, quality control, engineering skills, regular labour force.

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СИСТЕМА ПОДГОТОВКИ БУДУЩИХ СПЕЦИАЛИСТОВ: УПРАВЛЕНИЕ КАЧЕСТВОМ

Аннотация. Цель статьи – представить разработку инновационной стратегии управления качеством подготовки инженерно-технических и рабочих кадров (далее по тексту – будущих специалистов) в образовательных профессиональных организациях на основе принципов социального партнерства.

Методы. Теоретические: теоретико-методологический анализ, политеоретический синтез, моделирование. Эмпирические: исследование и обобщение опыта применения системного, процессного и компетентностного подходов, эксперимент, включенное наблюдение, анкетирование, экспертная оценка, SWOT-анализ как метод стратегического планирования, заключающийся в выявлении факторов внутренней и внешней (социокультурной) среды организации.

Результаты. На основе анализа и обобщения тенденций количественной оценки качества, накопленного опыта управления качеством подготовки будущих специалистов в современных экономических условиях разработана стратегия развития данного процесса в образовательных профессиональных организациях.

Научная новизна. С учетом современных требований и принципов социального партнерства построена прогностическая модель управления качеством профессионального обучения инженеров и рабочих; разработан алгоритм управления учебным процессом в соответствии с требованиями международных стандартов ISO для реализации процессного подхода: матричная основа ответственности, компетенций и должностных полномочий лиц, отвечающих в образовательной организации за осуществление учебно-воспитательного процесса; «проблемные» точки и диагностический инструментарий оценки качества профессиональной подготовки будущих специалистов. Определены перспективные направления инновационных преобразований в системе управления качеством подготовки специалистов; обоснованы параметры комплексного анализа состояния системы обеспечения этого качества на основе процедур самообследования и анкетирования; разработана технология совершенствования системы, обеспечивающей качество профессиональной подготовки; определен механизм внедрения в профессиональной организации системы управления качеством образования.

Практическая значимость. Использование полученных результатов в образовательной практике позволяет повысить результативность инновационного развития системы профессионального обучения.

Ключевые слова: профессиональная подготовка, управление качеством, инженерные и рабочие кадры.

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Problem statement. The last decade has shown a steady trend of increasing the economic potential of the majority of states by science and technology, technological innovation. Modern high-tech products show an increase in the role of high-tech industry. Accordingly, their development requires a high level of innovation of the national economy, the training of mobile, competent and competitive engineers and skilled workers in today's job market (both domestic and international). Therefore, a special attention should be paid to «the quality of vocational education as the guarantor of sustainable economic development, to ensure it by mobile and competent professionals» [2, p. 5]. The problem of training in economically developed countries has become a significant part of economic policies. The Russian industry has also entered an innovative phase of the development. The dynamic growth of the economic potential of the country, innovative technology base and knowledge-intensive industries require an immediate solution to the staffing problem, in a certain way depending on the system of vocational training of workers and engineers, engineering staff, managers of industrial bodies, as well as the process control.

The research analysis and publications. The problem study is based on the development of Russian scientists in the field of multi-level vocational training and basic vocational pedagogy (S. Y. Batyshev, A. M. Novikov, V. A. Romanov, G. M. Romantcev, V. A. Slastenin, V. A. Fedorov et al.), on the works, including foreign ones, the problems of organization theory, the system, competency and process approaches to the analysis of pedagogical phenomena (E. F. Zeer., N. V. Kuzmina, S. B. Seryakov, A. I. Subetto, E. G. Yudin et al.). There has been carried out a number of studies on the social system management in the field of management education, the creation of optimal models and technologies of management activities (I. M. Badayan, T. M. Davydenko, V. M. Petrovic, M. M. Potashnik, T. I. Shamova), the quality management (V. G. Afanasyev, M. D. Gvishiani, C. E. Deming, A. A. Kolesnikov et al.). The works on the problems of educational systems and the quality of education are of particular importance for our research (I. I. Burlakov, A. A. Orlov, M. M. Potashnik, S. V. Razumov etc.). The particular line of research is the achievement of personhood of a future specialist and the training of engineering and labourcraft. Its various aspects are in the picture of educational, psychological, sociological, historical and other fields of research (M. V. Andreeva, V. N. Kormakova, A. A. Listvin, A. V. Mikhailov, I. V. Tulbovich et al.). The polysubject position in management is processed in the works of Y. Vasilyeva, I. V. Vachkova, V. I. Kovalenko, M. M. Kalidium, V. A. Sitarova et al. [3, p. 8–9].

In the above mentioned works the problems of the quality control system, monitoring the quality of training, the quality training of managers and teaching staff in vocational education are considered. It is noted that the development and implementation of optimal control model, which is based on the integrated use of management technologies, sure enough, improves the quality of future specialists' training.

Selection of the unsolved part of the shared problem. Currently, the development strategy of high-tech industries is a priority policy in the sphere of industrial production. That is why it is particularly acute for the practical importance and the lack of staff professionalism in dynamic socio-cultural and economic processes. Therefore, it became necessary to determine the state of long-term prospects for training managers, scientific staff, engineers and technicians, skilled workers for high-tech manufacturing industries as an inefficient personnel management system, and the quality of their training leads to professional deformation and dysfunctional consequences of any production activity.

The domestic industry modernization and the high-tech technologies development require a different understanding in matters of training competitive specialists and workers with the necessary production and personal potential, cultural and professional competence, the ability to apply them: «The successful personal and professional self-determination of a student, individually chosen educational path contribute to the quality of education» [4, p. 106].

Defining the social policy in Russia, stating the need to train engineers and highly skilled workers, the Russian government has provided some priorities: «The Russian vocational education should be competitive on a global level. It is the engineering staff, Russian universities graduates that will be the basis for the economy modernization. The training of highly skilled workers, engineers for the real economy – is a national necessity, one of the main conditions for a significant increase in productivity, and this is one of the key objectives of the development» [8]. Therefore, not without reason, we can say that «... today's worker is the backbone of the economy, and is in charge of complex and evolving technical regulations. The qualification of a worker, his professional pride and honor are the decisive factor for competitiveness» [3, p. 5].

It follows that the quality of engineering and craftlabour training for new manufacturing technologies, and the policy of the state in solving this problem depends largely on the future of our state, its economic and political security. Therefore, in Russia there is a need to develop a national training strategy for high-tech industries, including vocational training and retraining competitive engineers and workers for modernized institutions. These tasks must be carried out primarily by the institutions of higher education, addi-

tional vocational training, and research institutions of RAS, industrial sciences, and industrial structures. They should be decided with the agreement of both indicators and regulators in the planning system, under which the trust funds should be allocated, as long as the labor market alone can not adjust the solution of staff problem in high-tech industries.

At the same time, the analysis shows that the system of vocational education is still not able to solve the problem of shortage of qualified engineers and technicians and craftlabour [5]. In the activities of professional educational institutions there has been identified significant contradiction between the demands of the state, society, employers, and the learners themselves to the quality of education, the quality of control training in educational professional institutions and the insufficient development of the system, the competency and process approaches to provide the required quality. The discrepancy between the quality of education and the requested training requirements is expressed in certain inertia of vocational education, complicates the dynamic development of high-tech production. Therefore, we can state that the vocational education system of training specialists and workers, its management need to focus on the needs of the domestic labor market, and employers' specific demands, become a tool for solving economic problems of the society and increasing demands of the industry on the competence and the quality of training specialists.

Drawing goals. Hypothetically, a scientific basis in the resolution of existing conflicts is seen in the assumption that the dynamics of changes in economy, in other areas of social life will determine and make changes in the content of quality control, including the training per se. In the logic of the designated hypothesis there arises the idea that an important structural component of the interaction between the education system and the economic, industrial and socio-cultural spheres is a person, and training of important professional and personal qualities of future experts largely depends not only on the quality of labor, and product but also the quality of life, the level of development of the society and the state in general. It has been empirically supported that high quality training is an essential factor in the social protection of any specialist in the future.

Currently, a specialist is the main strategic resource, the property of the enterprise in the competition. We believe that this is due to the ability to be creative, which is an important factor in the success in their professional activities. The useful effect from the investments in high-quality vocational education can bring direct or indirect, both material and ethic benefits. In earlier works, it has been presented the need to find ways to increase efficiency in the context of quality control training of future specialists, where

the immediate task is to develop the ability of future engineers and workers to adapt to changes in the current economic and socio-cultural environment, engineering, technology, job management [1].

The basic study material. Modern scientists, educators, and researchers believe, not without reason, that one of the promising areas of quality control process of vocational training in secondary vocational and higher education could become the development of innovative strategies of quality control training of engineers and skilled workers in the educational professional institutions on the basis of social partnership and in accordance with the competency and process approaches. Thus, in one of the works I. I. Burlakova notes that the modern theory of quality control is based on the case that the quality control activities can not be effective after the products are manufactured, and this activity should be carried out during the manufacturing process. The quality assurance activity, which precedes the production process, becomes more important, because the sheer quality of the action is determined by the local and subjective factors. To account for the influence of these factors on the quality level an appropriate quality control system is required. Each country has its own concept of quality control, which reflects the essence of different methods used in the methodology of TQM (Total Quality Management) to address the quality improvement. The basis of these models put the process-system approach, and all the elements have a large degree of overlap, complement each other and differ mainly in the fullness and depth of the perspective of all the working processes of the institution [7]. The problem study and the analysis in the implementation of quality control system in educational institutions show that in today's environment it is more acceptable their introduction (subject to adapt to the peculiarities of professional training) in a compliance with the requirements of the standards ISO 9001:2000.

In this case, it is advisable to examine (I. I. Burlakova) the task blocks which contribute to the effective implementation of control systems in more detail. The first task blocks are aimed at the knowledge of the quality of professional training of specialists (engineers, workers) as an object of management, structure needs (public and private) that are met through educational activities. The next block is aimed at the establishment, rationale and target selection in the quality control system for future specialists training and their subsequent exemplary. The third block of tasks is related to the selection of methods and technologies which impact the quality of professional training of the engineer, a worker for the greater achievement of targets of quality control with the subsequent development of its mechanism. The fourth block is associated with the introduction of the quality control system of future specialist

training, maintaining its satisfactory performance. In our opinion, it is particularly important that the actions for quality control training are of a process, and therefore of stage – by – stage nature.

At the first stage, according to the logic implementation of management functions, the choice of goals and activities is realized to build the basic educational program (PLO), its content, planning educational activities for the training of future specialists. At the second phase the technologies of the content of the PLO are developed. At the third one the procedures of quality control training are carried out. The fourth stage is devoted to the selection of correcting actions to improve the quality of vocational training. In accordance with the requirements of ISO 9001: 2000 for all the processes there can be applied the methodology of C. E. Deming PDCA. It is as a set of principles and management practices on the basis of quality in order to achieve a competitive level of products and services in the global market, which makes it possible to say about the viability of the methodology of the International Standard ISO 9001: 2000 usage in a quality control training of future specialists.

We agree with I. I. Burlakova who characterizes the quality control system of future specialists training as a set of tools and methods for organizing activities of the management and control subsystems, which provides a task-oriented change of the educational process with the purpose of imparting properties that guarantee the satisfaction of social and personal needs, the state requirements for training future specialists with the specified levels of quality [7]. This definition of the essence of the concept allows us to summarize a list of conditions which are necessary for the implementation of the quality control process of training future professionals: scientific and methodological support of the process; the upgrading of educational and developmental functions of the educational organization in the context of vocational training; the development of innovative educational activities of the institution to provide high-quality update; the involvement of teachers in innovative activities and their desire to improve their professional and pedagogical culture, increasing the responsibility of teachers for the quality of the results of training; the development and improvement of criteria and indicators for certification of the teaching staff and educational institutions as a whole.

The complex of these reasons is defining for the quality control system implementation in the educational professional institution. The main objective of building a quality control system should be the continuous improvement of the formation of highly qualified professionals. They should be able not only to work on a national level (federal, regional) and international standards, but also ready to effective professional self-development in high-tech economy. In this case, the control ensures the quality of future professionals

training through the integration of quality pedagogical tools: job training programs (RUP), teaching materials disciplines (UMKD) and educational technologies; the quality of teachers and independent learning activities of students; the quality mastering competence of trainees in the disciplines of various units of the GEF VPO; the quality of innovation of educational professional institutions, material and technical, information and individual personal resources; the satisfaction of training and its results.

The quality of training of future specialists and professional performance of the educational organization are mediated by the achievement of the given purpose. This is an important factor in modern educational professional institutions as the number of students on a contractual basis is, as a rule, more than half of their total number. We are convinced that the implementation of the PLO, satisfying and meeting the needs of counterparts, always leads to the economic and social impact.

We think that the quality control system of the educational professional organization is based on the belief that it (the system) must be open and evolving, capable of quickly adapting and restructure of the organization's activities in the socio-cultural environment of innovation, in the meantime pedagogically interpret the consumer demand in educational services. It is important to note that the system should provide new capabilities to the problem solution in the social and cultural environment. Such an understanding of the quality control training is reflected in the priorities of educational policy of Belgorod State University, which is a national research university, and Tula L. N. Tolstoy State Pedagogical University.

Own experience in higher education shows that the peculiarities of the educational and professional institutions should be reflected in all stages of planning and design in their quality control processes, determining the components composition, and the nature of their relationship. Therefore, the problem of the concept implementing of the international quality standard ISO 9001: 2000 for the educational professional institutions on the basis of consideration of the specific educational professional field is primarily conceptual.

We carried out a theoretical analysis of scientific papers on the issue of quality control in the field of basic and vocational education (B. S. Ivanov, G. M. Romantcev, A. I. Subetto, S. Y. Trapitsyn, V. A. Fedorov et al.), as well as the analysis of the scientific community of Australian universities are capable of selecting conceptually different approaches for the model selection of quality control education in the educational professional institution. The first approach is focused on the use of technologies, tools and forms which traditionally take place in the system of vocational education and are positively

proved in practice to ensure the quality of future specialists training. The second approach is more technocratic (an absolute theory of quality management of manufacturing products and services); the third is a midline option that integrates the foundations of psychology, vocational pedagogy, control theory and the theory of quality control. We believe it to be the most promising in solving the problem of choosing a quality control model in educational professional institutions.

We have defined the main directions of the development of the basis for using modern quality control systems. They are: the development of conceptual basis for quality control system in the educational professional institution and methods of technological adaptation to the arrangements and special aspects of the educational institution. An important focus of this activity is to promote the principles of quality control to the main management processes, rule – based on the principles of social partnership: 1) the parties' interest in the partnership; 2) cooperation in the sphere of labor relations; 3) equal rights and equal responsibilities for the subjects of social partnership; 4) voluntary participation in the partnership; 5) legal coverage for social partnership; 6) feasibility and the regulatory keeping of the introduced treaties and agreements. The mentioned set of principles is aimed at having an impact on the quality of engineering and skilled workers (educational, methodical and scientific activities, personnel management, infrastructure management, etc.); ensuring continuity in the organization and carrying out innovative activities with existing mechanisms to ensure the quality of education.

The basic principles of the development of quality control system of educational professional institution coincide with the basic principles of quality control which are defined in international standards and are basic to the theory and practice of quality control training of future specialists. The described principles are also of practical importance: catalyze, promote and determine the work of the team of teachers in the right direction

According to the International Standard ISO 9001: 2000 the quality system can be characterized as a coordinated activity for directing and controlling an educational professional institution with regard to the quality. The quality control system, according to some teachers, can consist of several subsystems: the system of education quality control system to ensure the quality of training, the quality assurance system [6]; the quality system of the targets of the members of educational process, the system of quality of the content of training, the quality system of educational technology and the quality of the output of training of future specialists [8, p. 66].

The quality control training of future specialist, according to V. V. Cheski-dov, can be regarded as a process and as a result, provided that the quality

control education is based on the paper trail that describes all of the actions of the members of the process in order to achieve the required level of quality of the process. The quality control system can be represented documentary by the quality policy, regulatory, and paperwork for the activities of an educational organization, the standards organization.

The quality assurance system of future specialist training includes basic aspects of the educational institution among which may be the indicators of the greatest influence on the quality of training. The first group will be of indicators that characterize the structure of the professional training of future specialists: implemented areas of training the students in the institution, the PLO, curricula of disciplines (RUP), UMKD, the number of students that participate in the research project (NIRS), the indicators of students' progress. The next group is to characterize the activity of an educational institution in relation to the quality of graduates with specially designed diagnostic tools, data on the socio-cultural activities of students. The third group of indicators will give the characteristic of the quality assurance system. This system includes the following components: qualification as a qualitative characteristic of the teaching staff (PPP) and the quality of professional activities (degrees and / or titles, government and departmental awards, as well as the indicators that characterize the qualifications and professional skills); RUP content disciplines and UMKD on specialties and areas of training; the used educational technology, including modern information and communication technologies, the state of training and methodological support in the field of study; the amount of research work per teaching staff, coupled with NIRS training; tools and methods of NIRS; the amount of basic and applied research and the nature of their impact on the quality of training, resource supporting, etc.

The system of quality assurance should include: annual (including semi-annual) self-esteem reports on the activities of an educational institution; diagnosis of teachers and students, especially graduates; quality control of graduates; diagnosis of personal (physical, value-motivational, spiritual, moral and intellectual,) development level of professionalism; corrective actions, and others. Summarizing the above, we can say that science-based quality control training of future specialist will be more strategic and effective if carried out with regard to the requirements of ISO 9001: 2000.

In order to achieve the desired effect in the introduction of quality control systems in professional institutions it is a need for them to be accompanied by an analysis of the traditions and established mechanisms to ensure the quality of the educational process, especially management training of future specialists (patterns of interaction and decision-making, the degree of

formalization of basic administrative functions, the intensity forecast, organization, control and corrective activities, etc.); organizational structure of the educational institution (or the presence of autonomous separate divisions, the level of interest and participation, such as public authorities in the management, etc.).

The analysis of the existing in some Russian educational professional institutions the quality control systems suggests the presence of the following classifications: a) in terms of stiffness of control mechanism, the ratio of control and self-government (strict, soft); b) comprehensiveness of quality control system (system, module, local); c) in the resource intensity and composition of resources involved (material oriented and / or financial resources to the personal resources); g) for the purposes of usage (with a focus on performance and / or the development of the training system, the economic and / or social impact, staff, student body and / or external customers / socio-cultural environment).

Based on the methodology of quality control in social systems and the international quality standards, the quality control system model in educational professional institution can be represented as the following main units: prognostic, exploratory, analytical, designed, and implemental.

Since the study of the concept of quality control system is based on polytheoretical synthesis based on the complex of scientific systemological, psychological, pedagogical, evolutionary theories, as well as control theory, etc..., the basis of it is the Russian version of the international quality standards ISO 9000: 2000, set out GOST R ISO 9001–2001.

The internal basis for the administration of quality control system is to ensure improvement of service quality and enhancing the competitiveness of the educational professional institution; to increase the credibility of employers, consumers of educational services, other social partners; to ensure synergies between the parties of the educational process; in the effective use of all resources; in the creation of organizational and pedagogical conditions for the formation of future specialist; timely responsiveness to the needs of employers, labor market, all the members of the educational process; to attract and engage more social partners to improve the quality of the offered services.

The concept of quality control training of engineers and workers designed in educational professional institution is based on the following principles: focus on consumers of educational services and educational products, the system and process approach, the system of governance, aimed at improving the training of future professionals and workers, social partnerships, economic solutions to control the quality programs (certain principles defined in the international quality standard ISO 9000: 2000); and the principles of

public and private nature of quality control in education, dynamic quality control system (system development), multi-variant organizational and technological solutions within the framework of a quality control system.

The concept of the designed system of quality control training of engineers and skilled workers is based on the following ideas: standardization as a means of implementing the regulatory requirements for the quality, the creation of the matrix organizational structures of control quality, technologizing processes, formalization as a condition assessment of the quality, the use of resource capabilities and personal potential for improving the quality of training. The concept of quality control training of engineers and workers is based on the support of the criteria which describe the quality of a given level of training, the uneven development of the components of a quality control system for a variety of initial conditions.

The system of quality control model in educational professional institutions can be represented in the following major components: 1 – organizational and control structure (presence and responsibility); 2 – managerial functions (performance); 3 – control actions (organization of activities); 4 – resource support. Functionally, it can be presented as a summary of document-oriented management actions which are fulfilled in the logic of the lifecycle of the institution, and that provide requirements for the quality of training of future professionals at every stage and maintain a quality control system in an efficient condition. The combination of these procedures can be represented by the demand to the graduates, the design process of the future specialist training, process control training of future specialists, management performance monitoring, management inadequacies and improvements, the study of educational and professional activities of graduates, the analysis of quality control system of educational professional institution, the internal audit.

The pilot study carried out comprehensive analysis and assessment of existing in the educational professional institution a quality assurance training of future specialists in order to identify strategies for further improvement in accordance with the concept and model, the requirements of international quality standards ISO 9000: 2000 have shown that it mostly is not organized. However, many of its components do not meet the requirements of quality control as an integrated system. Scientific literature analysis has allowed us to establish the degree of the development of the system, to identify some areas for further improvement of the main components of the quality assurance system of the educational process in the education of a professional institution (target – oriented, regulatory, activity, motivation and stimulating, informative, informational, criterion-evaluation and organizational).

The priorities for further improvement of the quality assurance system are indicated: the development of educational policy in the context of quality control with the relevant goal setting, obligations to employers and the members of the educational process, methods to ensure the required quality of educational services; modernization of RUP and the PLO, their design and assessment; learning of quality management functions (e.g., forecasting needs of educational services, labor, quality control, coordination of polysubjective management, including information management) which are out of the picture in the development of the activities of an educational institution; the mastery of quality control methods (assessment and self-assessment procedures for internal quality audit, quality of self-training); the creation of new units in the organizational structure of quality control training of future professionals; clarifying the regulatory framework of quality control training of future specialists, the acquirement of algorithms of polysubjects activity in the control processes in order to improve the quality of training in the education; the development of criterion-evaluation systems, the introduction of technologies assessing the quality of training of future specialists.

This study has allowed to establish the existence of non-uniformity in the mastering of the members of quality control of professional training of future engineers and workers, as well as certain types of technology and quality control training. According to expert estimation, and according to some teachers, the following quality control of professional training are least developed: program-targeted control – 3.65, software quality control – 3.7, promising quality control – 3.66 (score on a 5-point scale) [5]. Among the technologies of quality control in educational professional institution can be stated the underdevelopment statistical quality control – the weighted average expert rating of 0.46 (out of 2); technology application monitoring – 0.67; technology pedagogical design – 0.80; methods of documenting – 0.88; reflexive methods – 0.90 [5].

Choosing a model of a quality control system training of future specialists in educational professional institution has been relied on the factors that determine its contours: the level of strictness / softness of the quality control system of vocational training; its coverage of control and educational process; resource-intensive construction and operation of the quality control system of vocational training; tasking structure of its application. This study has allowed us to apply the most appropriate, corresponding to the control culture and the possibilities of a professional institution, structure of the quality control system: semi-rigid, in terms of their control (external and internal) (favored by 52.4% of respondents), the weighted average expert rating was 1.71 points of 2 possible); system in terms of completeness of the coverage of

all the processes (the experts noted the high importance of regulatory quality control system of the educational process, the average level of significance – the educational process, the control of educational institution and personnel control); focused mainly on the personal and social resources (average rank of human resources – 1.70; Resource Partnership – 3.54); to solve the internal problems of the organization (internal priority purposes of the application of quality control system contributed approximately 68.5% of the respondents in the survey).

The model selection process for quality control system implementation in training future engineers and technicians in educational professional institution has been carried out in the following versions: frontal introduction of elements of the quality control system of vocational training; consistent implementation; concentric implementation. In the process there has been carried out a thorough analysis of the necessity and sufficiency of all types of resources, the effectiveness of management of educational institution in the educational process in particular; the implementation tasks have been determined, the possibility of their implementation has been predicted, there has been carried out a comprehensive assessment of organizational and pedagogical conditions and socio-cultural factors that promote or hinder the implementation of a quality control system in educational professional institution. The study showed the insufficient decentralization of management of educational institution in the educational process, in particular (0.72), as well as the efficiency of document management (0.80) and resource management (0.78) (using a 2-point scale).

The SWOT-analysis, surveys, internal and external expertise, including an assessment of the complexity, resource requirements and possibility of tasks fulfillment in the implementation of quality control system of vocational training in the educational professional institutions tend to the choice of models which provide its implementation in series and / or concentrically depending on the available resources and the scale of tasks implementation, control status in educational institutions, effective conditions (internal and external) and socio-cultural factors.

The introduction of a quality control system components of training future engineers and technicians on the basis of the implementation plan in stages which consists of: the developed policy in quality control; activities for the educational process management, staff resources; the adjustment based on the principles of social partnership and of the system principles of organizational structure, and appropriate control mechanisms for quality training of future specialists in educational professional institution (there have allocated target program structures, refined the authority, functional, responsi-

bility of officials and departments; the complex evaluation criteria and methodology for the implementation of quality assessment training of future professionals in the stages, including the monitoring of the quality of the educational process), allowed us to talk about the high performance and availability of the implementation of quality control training system in an educational professional institution.

The consequence of the above mentioned innovations related to the implementation of some of the components and activities of quality control system in the first stage of the process have become as follows: mainstreaming of extra budgetary activities and social partnership in order to attract additional financial and material resources (increase in the number of purchased computer equipment, significantly increased security training benefits); increased satisfaction with the quality of training graduates, respectively, increase in the percentage of graduate employment (66% of employers stated good and excellent professional (theoretical and practical) training of graduates versus baseline 32.4%), improved the quality of the engineering and teaching staff, educational institution competitiveness in the market educational services (employment of graduates in the total sample was 74.8% versus 62.4% of baseline), there was a positive trend, improving the quality and effectiveness of the educational activities of the institution as a whole.

Conclusion and future development. The obtained outputs are the main (basic) for the technology development of quality control training of future specialists in vocational education. The algorithm developed by the authors of quality control training, study parameters of complex system analysis to ensure this quality on the basis of procedures for self-examination and questioning, and the mechanism of implementation of the system of quality control training of future specialists in the professional institution can be used them in the implementation of the system, the competency and process approaches in professional training, as well as find out promising trends for future research in vocational education.

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