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## About the Problem of Professional Personnel Shortage in Mechanical Engineering Industry and Ways of Solving

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### Abstract

The article considers the problem of qualified engineering personnel training in the mechanical engineering industry. The recommendations for a qualified specialist training with a high level of professional competencies are offered for the purpose of strengthening of Russia's unity and progressive development.

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### 1. Introduction

Industry of mechanical engineering, which acts as the basis for production system in any country that reached the industrialization stage, undergoes the drastic changes, caused by internationalization of production and capital, world market globalization and multiple aggravation of competition. Re-orientation of mechanical engineering sector to intensive and advance way of development is required, what assumes necessity to solve a complex of accumulated interrelated and interdependent problems in legislative, legal and regulatory, financial and economic, educational and personnel areas (Lizunkov & Sushko, 2015).

Today one of the main objectives for mechanical engineering sector is its reconstruction, allowing the mechanical engineering, and Russia in general as an active member of world community, to approach the world level of economy. Territorially, mechanical engineering in Russia is one of the most widespread industries.

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## 2. Subject and methods of research

One of the most important problems in mechanical engineering is professional personnel shortage, namely, high-qualified engineering technical and regular labor force, what is reflected in the concept of the State complex program for mechanical engineering development in Russia, related to inefficient domestic system of professional education (Efremenkov, et al., 2012).

At present, the social institution of basic enterprises, which funded construction, provision of equipment, tools and materials, production and practical training for initial and secondary vocational education institutions, is practically eliminated. It complicated the training of qualified personnel considerably. Number of initial vocational institutions or their merging with the secondary vocational institutions had a negative effect on personnel of mechanical engineering enterprises.

It is now obvious that future of the Russian society is connected with innovative economy development, which is impossible without modernisation of professional education system. Innovative economy acts as the object of management, causing search of new approaches, implementing the strategy of innovative development of modern professional education system. Peculiarity of current situation of professional education development is its restructuring. The developing process of educational institutions diversification results in formation of a new hierarchy of professional education system.

Transition of mechanical engineering production to innovative phase of development also directly depends on qualitative and quantitative characteristics of specialists, working in the industry. More than two thirds of employers state about increased demand for personnel of new kind and profile; requirements to professional qualification grow. The increased demand in specialists of a new kind is related to modernisation of equipment and technologies, expansion of production volumes, range of manufactured products and new markets conquering. The situation in the industry determines the innovative approaches to organization of personnel training for mechanical engineering enterprises objectively.

As economy development has an advance nature, technological changes hinder the prediction development of demand for personnel and competencies, the demographic problems cannot be left unmentioned. It is also important to note an intensified skewness towards higher education and lack of qualified workforce, the gap between the structure of specialists training and labor market structure is increasing, and the prestige of blue-collar professions in the mechanical engineering sector is falling. Employers make steep demands to graduates, and the turnover of personnel increases.

Innovative development is the basis for education modernization, the necessity to form a multilevel system of professional education that will give new opportunities for optimization of higher professional educational institutions activity, implemented as strategies, programs, models and projects based on prediction, for development and provision of personnel demand for innovative economy and mechanical engineering sector.

At present we speak about transition from mass education to “single-piece” training of specialists in high demand, “rare” specialists, and specialists of certain qualification level and profile.

The latest research implementations in industrial production only then give feedback in the form of economic growth and nation well-being when there are trained and highly qualified personnel with the required skills, knowledge and ability to risk and make independent decisions. Constant exchange of information, knowledge and skills happens in the information space; the content of these data constantly changes, develops, and enhances the personnel activity that uses this information. Only highly qualified personnel in any sector of the country’s economy is the most important requirement for determining the country’s economic development in the world economy.

Market uncertainty, dynamism of social and cultural formation of the time, increased requirements to knowledge level in society now results in “ageing” of engineering and technical personnel of the national industrial complex. Qualification and knowledge level of the working people lags behind the contemporary requirements of knowledge-intensive technologies (Suzdalova, 2013).

Reorganization of relations is required not only between enterprises and professional education institutions, but among professional education institutions of different level. Today it is impossible to solve the problem without social partnership in the area of professional education, the key role in its development we give to employers who, in our opinion, should fulfill the following functions:

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