

## FEATURES OF MODERN EDUCATION IN BRANCH UNIVERSITY

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### Abstract

The article deals with the peculiarities of training specialists in the system of modern industry education. The model of interaction between enterprises of the railway industry and industry universities is targeted training of specialists on the basis of jointly developed specialized training programs. Education in the railway industry occupies a leading place in the system of vocational education in Russia. Given the versatility of industry education, the authors consider the structure of industry as a multifunctional educational cluster. Modern industry education allows to combine professional education with the needs of the labor market, as well as to increase the competitiveness of graduates of transport University in the labor market due to the high quality of training.

**Keywords:** industry education, training, competence, engineering, integrativity, educational aspect, interdisciplinary communications, information technology.

## 1 INTRODUCTION

In the current conditions of the Russian economy, only sectoral universities can provide full-fledged staffing for a number of industries. Transport education is an integral part of the Russian education system and includes all levels of vocational education (secondary and higher), additional vocational education and vocational training in order to ensure the interests of the population and the transport industry, personnel and scientific support for the implementation of the Transport strategy of the Russian Federation in the interests

of innovative, socially-oriented development of the country. The complexity of technological processes of the railway industry and the increased requirements for the safety of freight and passenger transport has formed a system of staffing. New conditions of internal and external business environment, structural transformations within the holding «Russian Railways» lead to increased requirements in training.

## **2 METHODOLOGY**

In the current conditions of sectoral education, obtaining special knowledge that characterizes the mastery of the profession has become insufficient. The specialist must have certain qualities necessary for the application and implementation of the acquired knowledge. Engineering requires a holistic view of the object of design, thinking, knowledge of formulas, diagrams, drawings, a combination of scientific thinking and the ability to foresee. Accordingly, comprehensive development and an integrated approach are necessary to solve the tasks set.

## **3 DISCUSSION**

The study of the requirements of the transport industry showed that the required competencies of the specialist are: the desire for leadership, the ability to self-study and decision-making, social adaptation, responsibility and activity in obtaining and transferring knowledge, the ability to work in a team. Also in the curriculum laid the principle of formation of students' competencies relevant to the development of transport infrastructure.

Disciplines of social and humanitarian block have a great influence on the formation of horizons, uniqueness; determine the uniqueness of the vision of the specialist. The development of society is the embodiment of human activity, which is expressed in various types of its activities. Activity is the attitude of a person to other people and the world around him, i.e. the orientation of a person to adapt and change conditions in accordance with his interests and goals. The social and humanitarian aspect forms the worldview, the value system of perception, individual and professional traits necessary for a specialist in his corporate environment, as well as in the system of social relations in which he is included.

Teaching students industry university disciplines natural science may be of high quality if the following conditions are met: a didactic justification of the interdisciplinary connections of physics and chemistry technical special disciplines; polytechnic orientation of the courses of physical-chemical unit; a professional focus in the study of physics and chemistry.

The specificity of the branch University assumes the integrativity of the content element in the technology of teaching physics. Students' knowledge of the course of physics should be integrated and interrelated with specialized disciplines. Thus, the purpose of studying the course of physics is the formation of natural-scientific physical and technical base for the successful development of special knowledge in the railway industry.

This interrelation with special disciplines allows to create a basis for deep consideration of processes, laws and the phenomena relating to professional activity of the future specialist. There are four types of intersubject links:

- 1) On the use of the acquired knowledge in physics for a deep understanding of the knowledge of special disciplines;
- 2) On theories to explain the phenomena and processes occurring in nature and are the basis for technical innovations;
- 3) On the unity of interpretation and understanding of the laws of nature in physics and other general technical subjects;
- 4) On application of general scientific theories in practice: theoretical bases are studied on programs of general education and general technical disciplines, and practical application - on laboratory practical work and in special disciplines.

Today there is no clear methodology for solving problems of interdisciplinary nature in the training of railway specialists, and there are no special problems in physics, including sectoral problems, which leads to the use of adapted technical problems in physics classes.

One of the means of formation of information and training environment in industry universities is the creation of electronic educational and methodical complexes in all disciplines, including the environment and safety. For these disciplines, a variety of virtual laboratory workshops are implemented in the educational process through circuit modeling programs. The virtual laboratory workshop on ecology and labor safety in the

branch higher Education institution allows to solve such problems as saving of the means spent for the laboratory equipment, reduction of time for preparation and carrying out laboratory works, acquisition of skills of use of modern mathematical packages. This information and learning environment is designed for students of both distance and traditional full-time forms of education in order to improve the efficiency of independent work and reduce the burden on the teacher.

In recent years, more and more widespread game methods of training (educational activity games based on the principle of simulation of situations of real professional activity), the method is called «active», implying the expected more active participation of the student in the training session. Simulation game is a computer program with which it is possible to simulate technological, hardware schemes of various environmental processes and production, demonstration of these schemes, the ability to assess the level of knowledge acquired by students and the application of this knowledge when working with the program of modeling of real environmental processes. Application of this technology of transfer of knowledge allows to solve some problems connected with system of training of specialists in technical higher education institutions, more effectively, than with use of traditional methods of transfer of knowledge, increases motivation of visit by students of educational occupations. It turns out to be important that in business or simulation games a certain production situation is reproduced, for example, on labor safety and human activity in it.

The main direction of development of the transport industry is total digitalization, which will move from the automation of individual technological and management processes to a comprehensive real-time management system. This trend is associated with continuous training of specialists. The implementation of this task imposes strict requirements to ensure the learning process with laboratory equipment. Higher education implies the formation of competencies through the explanation of the basic principles of functioning of transport systems, which can't be carried out on the basis of a full set of standard industrial equipment due to trade secrets and security issues.

#### **4 RESULTS**

Modern requirements to ensure a high percentage of originality in the text of the diploma project involves the application of forces of future specialists to the development of analogs of railway automation and telemechanics systems in the framework of the training stand. This approach allows in conditions of limited funding to solve the original problem of building the hardware base. Further development of the laboratory is connected with the virtualization of technological processes of motion support on the basis of specialized software with the possibility of involvement in the process of studying real floor equipment. As part of the development of a number of disciplines, the student, programming object controllers and virtually managing technological processes, must master the internal logic of interaction of floor equipment of station and distillation systems with means of transmission, processing and storage of information.

#### **5 CONCLUSION**

The experience of the authors in the branch of the university leads to the conclusion that the use in the learning process «active» methods, gives a fairly good mastery of students skills of working with computer programs, activates the process of learning, organizing of independent creative work of students, allows the current test that work and make learning material more visual, accessible and interesting.

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