SCIENTIFIC AND METHODOLOGICAL BASES FOR PREPARING STUDENTS FOR SOLVING PROBLEMS AIMED AT THE PROFESSION OF PHYSICS

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Abstract:
The article discusses the scientific and methodological foundations for preparing future specialists for solving career guidance problems in physics and the problem of a pedagogical and psychological approach to professional training.
This article can be used by those who are involved in the implementation of the method of pedagogical and psychological approach.

Keywords: pedagogical and psychological; continuing education; professional activity; scientific and methodological; Chief Engineer; competence; technologies; Components; model; modeling; improvement.

In the course of large-scale targeted work carried out in our republic, the fundamental reform of the education sector, the tasks provided for in the Law "On Education" and the "National Program of Personnel Training" are being implemented step by step. At the core of the reforms envisaged in the continuing education system is the task of "Development and implementation of thorough mechanisms for the integration of continuing education with science and production." In the full implementation of the tasks set forth, the stated goals and tasks "Strengthening the material-technical and informational base of educational institutions, providing the educational process with high-quality educational literature and advanced pedagogical technologies" forms the basis.
Development of the field of education and science: "stimulation of research and innovation activity, creation of effective mechanisms for the implementation of scientific and innovation achievements, specialized scientific and experimental laboratories and high technology centers at higher educational institutions and research institutes and establishment of technological parks" are set as a priority task.
This priority issue determines the need for a professional, as well as a professional-psychological approach to pedagogical activity in the training of specialists and future specialists in all higher education institutions.
Many scientists have studied the literature created in order to enrich the science of physics on the basis of scientific, methodical and visual tools. It systematizes the conducting of

educational experiments in the teaching of physics with a focus on the profession, guidelines and methods of conducting experiments, methodological recommendations on the organization of physics practicums in educational institutions, training on "Atomic Physics" The issues of using ICT achievements are widely covered in the classes.

The current stage of the development of this field in the vocational education of physics is characterized by the presence of various types of education (approaches to it), the main of which are as follows:

• knowledge-oriented (subject-oriented) education aimed at mastering the system of knowledge, skills and qualifications of students;

• developmental education that prioritizes the mental development of a person, first of all, the development of his intellectual abilities;

• personal (person-oriented, developmental) education, self-determination, self-development and self- provides the conditions for its implementation;

• competence-based education, as a result of which a person acquires knowledge and personal qualities oriented to a certain practice, which will enable him to work successfully and effectively in the professional and social spheres.

The question of knowledge and skills formed in the process of solving problems from physics to the general technical profession is of interest. It is central to the context of knowledge-based learning, the acquisition of knowledge and skills is its goal, and is fundamentally important in the context of other types of learning. The most important thing is the possibilities of knowledge formation in the process of solving problems from physics to the general engineering profession:

• physical principles of operation of modern technical devices;

• physical approaches to the design of instrumental constructions with the necessary functional characteristics;

• physical basis of technologies and skills.

• goal setting;

• problem-deterministic search, selection and analysis of available data;

• use of acquired knowledge as an indicative basis for building professional activity;

• implementation of the program for achieving results;

• critical analysis of the achieved results.

The need for abstraction in solving general engineering problems from physics to the profession is determined, first of all, by the role played by physical modeling in this case, which implies the selection of the most important features and relations from the point of view of the problems of the object being studied.

Physical modeling, in turn, involves the use of comparison of the model with reality. This is necessary both at the stage of developing a model designed to reflect the object of study and

to replace it in such a way that its study provides new information about the object, and at the stage of experimental verification of the model, when its predictions are realized.

Solving career-oriented general technical problems from physics, according to their content and nature of activity, helps to develop a number of the most important intellectual qualities of a person:

• clarity of mind - simplicity and transparency of thought;
• logical mind - systematic thinking;
• depth of consciousness - the ability to distinguish and understand the most important things in events;
• breadth of mind - versatility of thinking;
• flexibility of mind - the ability to change the direction of thinking;
• independence and originality of mind - creative nature of thinking;
• criticality of the mind - the validity of judgments, serious attitude to the objections that arise.

Summarizing the above analysis, it can be noted that achieving the goal set in the work is compatible with the implementation of the current main approaches to education and can contribute to solving the important problem of its theory and practice.

Solving the problem studied in this article requires not only basic teaching approaches in higher education, but also a number of general didactic principles:

• principle of scientificity;
• the principle of professional orientation;
• the principle of availability;
• principle of differentiation and individualization.

The number of fields of practical application of physics is huge and constantly growing. Taking into account the role of physics in the development of intellectual and creative abilities of a person, his cognitive abilities, the methodology of teaching physics can be included among such directions.

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