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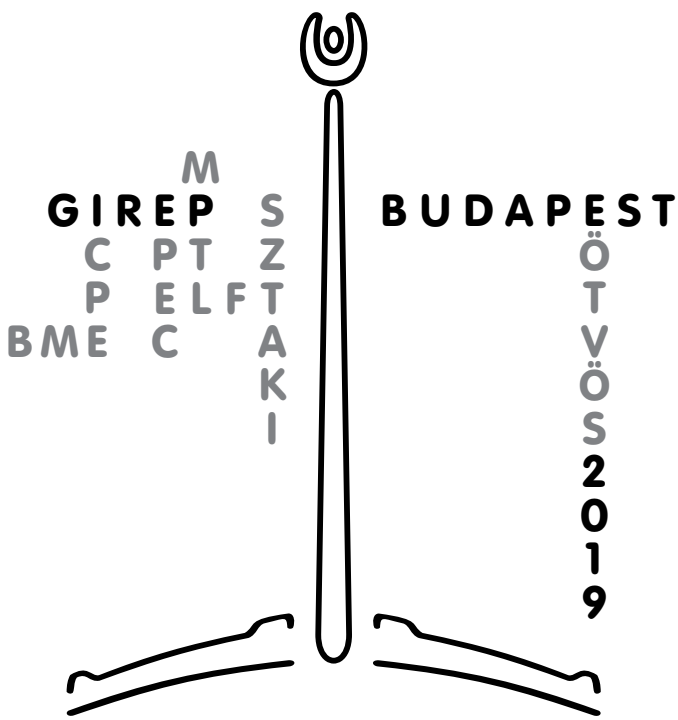
CONFERENCE PROGRAMME
BOOK OF ABSTRACTS



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Practice-oriented model of training students in physics at a technical university

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Abstract. The purpose of the report is to examine and justify the feasibility of practice-oriented teaching of physics in the training of engineers. A training model (at the level of physics), including such structural components as a model of a specialist's activity, a model of practice-oriented learning, a structural model of cognitive activity and independence, the technology of their formation, the result of preparation lies in our research. This model is being tested at Almaty University of Power Engineering and Telecommunications for bachelors studying in telecommunications and energy.

1 Introduction

Higher technical education is the most important part of Kazakhstan's engineering training system. Modernization of Kazakhstan education should correspond to the world trend of professionalization of engineers' training, which is aimed at strengthening the practical orientation of educational programs. But new directions in the technology of the educational process are very slowly implemented in practice in our country. Graduates of our universities are often not ready for professional activity that, in turn, is the reason for the "lack of demand" of young specialists.

The transformation of the university into a modern dual system is associated with a very low level of readiness of the majority of students to study in new conditions, especially those who have graduated from Kazakh schools. This provision determines the huge demand for the definition of new educational models for the development of an active and independent student already in junior courses, focused on mastering their practical skills in the subject being studied. Therefore, practice-oriented teaching of basic disciplines (in our case, physics) is the main condition and environment, forming the main motives of students' independent cognitive activity [1-3].

2 Theoretical basics of practice-oriented learning. Research method

In the modern literature the following definition of the concept of practice-oriented learning is given: a practice-oriented educational environment is a specially created educational space which brings together targeted, informative, procedural components, and performs communicative, informational, activity, and professionally oriented functions. All this ensures the achievement by students of personal, metasubject and subject results.

The principles of the organization of this training are:

1) motivational support of the educational process,
2) the relationship of learning with practice
3) the consciousness and activity of students in learning,
4) activity approach.

Students receive practical skills in the field of energy (or telecommunications) mainly in industry or in relevant laboratories after studying a course in physics. Therefore, the application of this method for 1-2 years of study at the university (when studying physics) is a difficult task. At the same time, the transition to such training can be accomplished with the simultaneous use of the principles of personal-activity, professionally directed and practice-oriented learning in the context of a technical profile specialist model. We call these models the energy, heat and power engineering, the field of telecommunications specialists.

We develop the structure of practice-oriented lectures and practical exercises for each specialty separately. The lecture material on physics according to its content for different faculties does not have any special distinctions, but by professional orientation they acquire distinctive features. Lectures are formed by the presentation of the material with the greatest possible closeness of physical theories to solving the problems of future engineering activity. You pay special attention to physical tasks. Students experience the greatest difficulty at the stage of formalizing a practical task in the first place. We are correcting the method of forming the key competences of students in the Kazakh language of instruction using design and research activities. Also, we look at the students' activeness and self-sacrifice as well as their personal qualities. The end result is diagnosed according to the requirements of the trained students.

3 Conclusion

Building a practice-oriented learning process based on professionally-oriented allows you to maximize the content of the physics course to their future profession through a system of learning goals, formulated in the language of professional tasks, determined from the model of the specialist's activities. We envisage transformations at the technology level if inconsistencies between learning outcomes and training requirements are possible.

References

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