


# Chapter 3


## Methodology of Practice– Oriented Teaching of Mathematics to Students Using Computer Technologies

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### ABSTRACT

*Reflecting the phenomenon of reality, information and information processes are fundamental concepts in the modern picture of the world. In accordance with the classical methodology of cognition, the representation of any process or problem solution is a model, respectively, an informational and mathematical model. Problem solving always starts with modeling. This article discusses the methodology of practice-oriented teaching of mathematics to students of the natural science profile using computer technology. Practice-oriented learning is considered as an independent form of education, and its methodology as a specific form of general*

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*education methodology. The authors proceed from the fact that, in the methodology, the “generalized method” is important, first of all, together with the doctrine about it, as well as “methods of organization”, that is, from the fact that at the level of methodology (pedagogical general) the concept of practice should be considered. oriented learning as an educational and pedagogical system, the subject of knowledge, basic organizational forms, approaches to learning and principles for their implementation. Invariant connections are established between practice-oriented teaching of mathematics in a specialized university, on the one hand, and teaching applied mathematics, discrete mathematics, computer mathematics, on the other hand, based on the necessary description of them as relatively independent sections of mathematics, invariant relationships and relationships. The following is defined as the goal of practice-oriented specialized teaching of mathematics at the university - the formation of the necessary foundation and readiness (intellectual and motivational) for further education and self-study, development and self-development.*

## **INTRODUCTION**

The transition to a new information and educational environment involves: the study and analysis of new didactic opportunities characteristic of this environment; the use of new organizational forms and teaching aids that ensure the achievement of a new quality of education. Therefore, the use of information and computer technologies, the creation on their basis of a new information and educational environment aimed at the implementation of modern organizational forms of the educational process, is one of the main tools for the modernization of education. This study discusses various aspects of the methodology for using the methods and means of informatics for the organization of practice-oriented learning based on the use of information technology tools in the educational process.

The article notes that practice-oriented learning (POL), for example, mathematics is an important component of general and specialized education in the modern information society, in fact, constituting one of its forms. In contrast to theory-oriented education, it (POL) has a pronounced pragmatics, which is reflected in its strategy (direction to the practice of life) and tactics, emphasis on practice and reliance on technology. For the effective implementation of these strategies and tactics of teaching, its conceptual representation and logical-semantic description are necessary in terms of the systemic relationship of this teaching and teaching applied, discrete and computer mathematics. Therefore, it is necessary to describe them as independent subsystems of mathematics.

The concepts of applied mathematics, discrete mathematics, computer mathematics are well known, including in the field of education. But due to their relative novelty

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