



Methods of Teaching Elements of Discrete Mathematics to Future Computer Science Teachers in the Context of Digital Education

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Abstract

This article is intended to future computer science teachers and it discusses the problem of teaching the elements of discrete mathematics in the context of digital education, i.e. the model, content, means and methods of teaching. The purpose of the study in a context of digital education is to offer the future computer science teachers a learning model of discrete mathematics elements, the content of teaching and to demonstrate the effectiveness of learning through the experiment results. When conducting a study, it was used the methodology of a system-activity approach and the requirements of the State Educational Standard. During the research work, it was used an analysis of the literature on the research problems, as well as generalization of the results of the authors' individual pedagogical experience. The theory of development of the continuous education made a psychological and pedagogical basis of study. The model of teaching the elements of discrete mathematics for the computer science teachers is built on the basis of informative, technological and personal competencies that contain the elements of discrete mathematics, integrated with the mathematical foundation of computer science. In determining the learning content, such principles as fundamental, successive, integration, career guidance and modular are considered. In addition, it is determined the necessity of integrated teaching of discrete mathematics elements to the future computer science teachers in the study of professional disciplines according to the educational program "Informatics". The content of educational program of a certain elective course named the "Elements of Discrete Mathematics in Computer Science", consisting of 3 modules, is presented. It is given the examples of using the elements of mathematical logic, graph theory of discrete mathematics in programming in practice, in particular in computer science. The experiment shows the effectiveness of the proposed methodology, based on the knowledge



level of the future computer science teacher on the subject of discrete mathematics elements, i.e., the identified model.

Keywords: digital education, discrete math, informatics, integration, professional competence