A NEW COURSE FOR PRE-SERVICE MATHEMATICS TEACHERS

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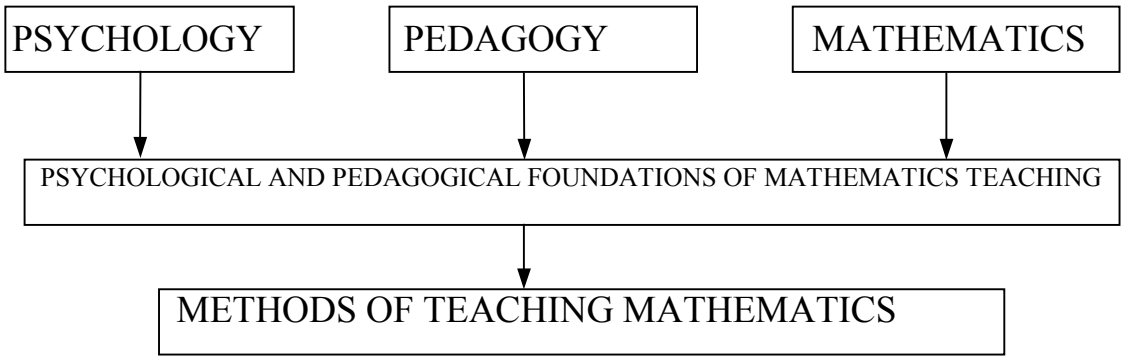
We will consider the new approaches to pre-service teacher education in a leading pedagogical university in Russia – in the Moscow State Pedagogical University. For the last few years here the problems connected to the realization of the complex approach to mathematical, psychological, pedagogical and methodical preparation of the mathematics teacher have been studied.

In particular, the program of a course "Psychological and pedagogical foundations of mathematics teaching" is elaborated. In the following we describe some features of the structure and contents of the course.

Essentially, the traditional general methods duplicate didactics, not concerning at all psychology of teaching. On the other hand, the particular methods consist of exact prescriptions for teaching certain themes of school mathematics, sometimes simply describing the school course. Necessity of the intermediate course, that would serve for a bridge between psychology, pedagogics and mathematics, on the one hand, and methods of teaching of mathematics, on the other hand, is obvious. This necessity is caused by the impossibility to effectively refer to general psychology and pedagogy. It is assumed that the course "Psychological and pedagogical foundations of mathematics teaching" will be studied by the students, that have already learnt psychology, pedagogics and some part of mathematics, before the course of methods of teaching mathematics (see the scheme below):



The brief description of the contents of the course "Psychological and pedagogical foundations of mathematics teaching" follows:

Mathematics as a science and as an educational subject. Mathematical thinking. Process of teaching/learning. Methods of teaching. Activity: the teaching activity of the teacher, the learning activity of the pupil. The activity approach to learning mathematics. Mathematical knowledge and skills. Scientific and educational knowledge. Transformation of scientific knowledge into educational (didactical transposition). Basic results of teaching mathematics: mathematical knowledge and mathematical development. Motivation of learning.