

(Table 5.2) Course unit description

Study program: Pedagogy
Type and level of studies: Bachelor Studies, 4 th year
Course unit: Methodology of Mathematics Teaching
Teacher in charge: Sanja Maričić, Ph.D., Full Professor Marija Rančić, M.Ed., Teaching Assistant
Language of instruction: English
ECTS: 6
Prerequisites: /
Semester: Summer Semester
Course unit objective Acquiring theoretical and practical knowledge about Methodology of Mathematics Teaching; getting to know and understanding the specificities and regularities of cognition and learning process in mathematics teaching; gaining abilities of analysis, comparison and using different models of mathematics teaching; training students for monitoring, analyzing and improving mathematical education in preschools, primary and high schools.
Learning outcomes of Course unit Understanding the regularities of acquiring knowledge and learning in math classes; understanding the nature and characteristics of mathematics teaching program, as well as the aim, content and outcomes of mathematical education; conversance of methodological settings about forms of mathematical education and extracurricular mathematical activities; understanding the process of forming mathematical concepts and acquiring mathematical content; understanding the specificities of evaluation in mathematical education.
Course unit contents Theoretical classes Concept, subject, significance, goals, and tasks of the Methodology of Mathematics Teaching as a scientific and academic discipline. Mathematics and mathematical education – concept, subject, significance, functions, and contemporary trends. Goals, tasks, content, and educational achievement standards in mathematics. Individual and developmental characteristics of children relevant to mathematical education. Mathematical education as a factor in children's development. Epistemological and cybernetic foundations of mathematics teaching. Logical foundations of mathematics teaching – logical operations, thinking processes, and laws of reasoning. Didactic and methodological foundations of mathematics teaching – principles, methods, and forms of instruction. Planning and preparation in mathematics education – methodological requirements and planning specifics. Forms of mathematical instruction. Methodological approaches to the formation of mathematical concepts.

Assessment and evaluation in mathematics education – types, methods, characteristics, recording, and documentation.

Analysis of textbook quality and features in mathematics teaching.

Working with gifted students.

Inclusive practices in mathematics education.

Mathematics teaching in multigrade (combined) classrooms.

Practical classes

Practical application of acquired knowledge in planning, preparation, organizing and realization of mathematical education. Critical assessment and reflection of practice in mathematical education, self-reflection and evaluation of methodological solutions.

References

Ediger, M. (2010). *Teaching mathematics in elementary schools*. Discovery Publishing House.

Skemp, R. R. (2002). *Mathematics in the primary school*. Routledge.

Skemp, R. R. (2012). *The psychology of learning mathematics: Expanded American edition*. Routledge.

Špijunović, K., Maričić, S. (2016). *Metodika početne nastave matematike*. Užice: Učiteljski fakultet.

Number of active teaching hours

Lectures: 1	Practice: 1	Other forms of classes: /	Independent work	Other classes
----------------	----------------	---------------------------	------------------	---------------

Teaching methods

Lectures, exercises, practical work, consultations, hospice, discussions, cooperative learning, independent work.

Examination methods (maximum 100 points)

Exam prerequisites	No. of points:	Final exam	No. of points:
student’s activity during lectures	10	written examination	
practical classes/tests	20	oral examination	50
seminars/homework	20		
project			
other			

Grading system

Grade	No. of points	Description
10	91–100	Excellent
9	81–90	Exceptionally good
8	71–80	Very good
7	61–70	Good
6	51–60	Passing
5	Less than 51	Failing