

<b>Study programme(s):</b> Master in Mathematics Teaching (MP)			
<b>Level:</b> master			
<b>Course title:</b> Mathematical Logic (MP-07)			
<b>Lecturer:</b> Rozália S. Madarász-Szilágyi			
<b>Status:</b> obligatory			
<b>ECTS:</b> 5			
<b>Requirements:</b> none			
<b>Learning objectives</b> The goal of the course is to introduce the basic ideas, methods and techniques of mathematical logic, form a comprehensive picture about problems of founding mathematics, and introduce the basic questions about the philosophy of mathematics.			
<b>Learning outcomes</b> <i>Minimal:</i> Basic knowledge about the development of logic and mathematical logic through centuries, manipulation with concepts of the propositional calculus, the quantification theory and the set theory. A student should know how to recognize basic laws of human thought and to prove them in a mathematically correct way. <i>Desirable:</i> A good student should have the idea of power and limitations of the formal method in mathematics, as well as of the philosophical foundations of mathematics.			
<b>Syllabus</b> <i>Theoretical instruction:</i> The beginnings of mathematics. Logic in Ancient Greece. Aristotle. The development of mathematical logic. Naive set theory and paradoxes. The philosophy of mathematics. Axiomatic theories. Propositional calculus. Completeness and compactness theorems. Quantification theory. ZF set theory. Ordinals and cardinals. <i>Practical instruction:</i> Getting familiar with paradoxes and discussing them. Manipulation with concepts of the propositional calculus. Formal derivation in propositional calculus. First-order model theory. Syntax and semantics of first-order logic. Logically valid formulas. Set operations. Partially ordered sets. Cardinal arithmetic.			
<b>Literature</b> 1. R. Madarasz, <i>Matematička logika – e-materijal</i> (2012) 2. E. Mendelson, <i>Introduction to Mathematical Logic</i> , D.van Nostrand, 1964. 3. S. Hedman, <i>A First Course in Logic</i> , Oxford University Press, 2004. 4. Ž. Mijajlović, <i>An Introduction to Model Theory</i> , Novi Sad, 1987. 5. I. Dolinka, <i>Kratak uvod u analizu algoritama</i> , Novi Sad 2008.			
<b>Weekly teaching load</b>			Other:0
Lectures: 3	Exercises: 1	Other forms of teaching: 0	Student research: 0
<b>Teaching methodology</b> Theoretical presentation with continuous interaction with students.			
<b>Grading (maximum number of points 100)</b>			
<b>Pre-exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
Colloquia	60	Oral exam	40