

<b>Study programmes:</b> Bachelor studies – Mathematics				
<b>Course name:</b> Teaching Methodology in Mathematics A				
<b>Lecturers:</b> Nebojša Ikodinović, Aleksandar Lipkovski				
<b>Status:</b> Compulsory				
<b>ECTS:</b> 5				
<b>Attendance prerequisites:</b> Introduction to Mathematical Logic, Algebra 1				
<b>Course aims:</b> Enables the students to be independent in preparation and realization of lessons, and provides the basic knowledge of teaching methodology in algebra and mathematical logic.				
<b>Course outcome:</b> The student shows good knowledge of teaching topics in algebra and mathematical logic.				
<b>Course content:</b>				
<b>The mathematical tradition:</b> Brief overview of the development of mathematics and teaching of mathematics.				
<b>Mathematics today:</b> the beginnings, specifics.				
<b>Developing concepts in modern mathematics:</b> extensional abstraction – rational numbers, arithmetics modulo an integer, arithmetics modulo a polynomial, complex numbers, cardinal numbers, real numbers, axiomatic abstraction.				
<b>Organization and mathematizing:</b> global organization, local organization.				
<b>Conceptual and algorithmic mathematics.</b>				
<b>The aim of mathematical education:</b> the system, applications and relations, discipline of mind and logical thinking, problem solving, language.				
<b>Teaching mathematics. Levels of the learning process. Singularities.</b>				
<b>The number concept:</b> counting number, numerosity number, measuring number, the algebraic method.				
<b>Solving equations:</b> equation of third and fourth degree, irrational equations.				
<b>General methods for solving mathematical problems:</b> induction, symmetry, invariants, auxiliary problems, auxiliary elements, generalization, specialization, analogy, reduction to absurdity.				
<b>Various methodical units from the field:</b> natural numbers (induction, binomial formula, combinatorics), integers (divisibility, factorization, congruences), rational, real and complex numbers, linear and quadratic equations, systems of equations, polynomials (divisibility, factorization, zeros, little Bezout's theorem, Vieta's formulas).				
<b>Practical part:</b> the students give lectures on some topics from the curriculum of primary and high schools.				
<b>Literature:</b>				
H. Freudenthal, <i>Mathematics as an Educational Task</i> , Kluwer Academic Publishers, Dordrecht, 1973; G.Polya: <i>Kako ću riješiti matematički zadatak</i> , Školska knjiga, Zagreb, 1956; Prešić, <i>Uvod u matematičku logiku</i> , Matematički institut, Beograd, 1984; G. Kalajdžić, <i>Algebra</i> , Matematički fakultet, Beograd, 1998; Ž. Mijajlović, <i>Algebra</i> , Milgor, Beograd, 1998; školski udžbenici iz matematike.				
<b>Number of hours: 4</b>	<b>Lectures: 2</b>	<b>Tutorials: 2</b>	<b>Laboratory: -</b>	<b>Research: -</b>
<b>Teaching and learning methods:</b> Lectures / Tutorials				
<b>Assessment (maximal 100 points)</b>				
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>	
Lectures	10	Written exam	-	
Exercises / Tutorials	-	Oral exam	40	
Colloquia	30	Written-oral exam	-	
Essay / Project	20			