Study programme: Mathematics (M3)

Level: bachelor

Course title: Elementary mathematics 1

Lecturer: Đapić Đ. Petar, Mudrinski M. Nebojša

Status: obligatory

ECTS: 5

Requirements: none

Learning objectives

Acquiring the basic knowledge and skills of elementary mathematics and basic algorithms that are going to be used during higher courses.

Learning outcomes

Minimal: Knowing and understanding the basic functions such as logarithmic, exponential and trigonometric functions. Capability of solving equations and inequalities of elementary mathematics. Fast drawing of elementary functions graphics. Ability to use notation symbols such as Σ and Π.

Desirable: Routine in using of algebraic identities and manipulating of basic set operations and elementary functions. Solving more complex types of equations, inequalities and systems of equations.

Syllabus

Theoretical instruction

Basic algebraic identities. Sum, product and mathematical induction. Counting elements of finite sets and fundamental notions of combinatorics. Basic features of complex numbers. Vectors. Elementary functions.

Practical instruction

Working on concrete examples and solving problems by means of basic algebraic identities and features of elementary functions. Solving of nonlinear, algebraic, exponential, logarithmic, trigonometric equations, inequations, and systems of equations. Working in different number systems. Examples and exercises that can be solved using contraposition principle and contradiction. Examples of statements in the form of necessary and sufficient condition. Disproving statements by constructing counterexamples.

Literature

1. Đ. Dugošija, Trigonometrija, Krug , 1999.
2. V. Mićić, Ž. Ivanović, S. Ognjanović, Matematika za drugi razred srednje škole, Zavod za udžbenike i nastavna sredstva, Beograd, 2001.
3. Analiza sa algebrom za drugi razred Matematičke gimnazije, Krug, Beograd, 2005.
4. Analiza sa algebrom za treći razred Matematičke gimnazije, Krug, Beograd, 2007.

Weekly teaching load				Other: 0
Lectures: 2	Exercises: 2	Other forms of teaching: 0	Student research: 0	

Teaching methodology

Traditional lectures, active participation of students. Typical problems and their solutions are practised during exercises. The capability of using the theoretical material is examined by the individual solving of tasks at two colloquia. At the final oral exam, a student demonstrates in-depth understanding of the material presented.

Grading (maximum number of points 100)

Pre-exam obligations	**points**	**Final exam**	**points**
Test	20	Oral exam	50
Colloquia	30		