Study programme(s): Master in Mathematics Teaching (MP)

Level: master

Course title: Modern teaching aids (MP-13)

Lecturer: Dragoslav Đ. Herceg

Status: elective

ECTS: 7

Requirements: none

Learning objectives

To acquire knowledge and skills related to the use of computers and multimedia in teaching. To introduce students to multimedia creation software, computer algebra systems and dynamic geometry software, *Mathematica* and *GeoGebra*.

Learning outcomes

The students will be able to use multimedia, *Mathematica* and *GeoGebra* in teaching, and to connect knowledge across different topics of computer science and mathematics.

Syllabus

Theory

Introduction to *Mathematica* and *GeoGebra*. Solving mathematical problems in *Mathematica* and *GeoGebra*. Preparation of tests and exercises using the software. Visualization of mathematics. Preparation of mathematical materials, graphs and their presentation using the software. Managing marks and keeping attendance records in spreadsheets and databases. Development and publication of multimedia and teaching materials on the Web and on content sharing services.

Exercises

Exercises follow the classes. Problems and assignments are solved in office software, *Mathematica* and *GeoGebra*. Mathematical texts, presentations and multimedia materials are developed.

Textbooks and resources

1. D. Herceg, I. Radeka, J. Nedić, *Kroz matematiku sa **Mathematica**-om*, Univerzitet u Novom Sadu, 2001.
2. K. Surla, Đ. Herceg, S. Rapajić, ***Mathematica** za fizičare i hemičare*, Univerzitet u Novom Sadu, 1998.
3. N. Krejić, Đ. Herceg, *Matematika i **Mathematica***, Institut za matematiku, Novi Sad, 1993.
4. M. Hohenwarter, J. Preiner, *GeoGebra pomoć, Zvanično uputstvo 3.0,* prevod D. Herceg, Đ. Herceg, www.geogebra.org
5. Microsoft SkyDrive, http://windows.microsoft.com/en-US/skydrive/home

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

Teaching methodology

Lectures supported by examples on the computer. Exercises and practical tests in a computer lab. Final exam is comprehensive and based on theoretical lectures and practical exercises.

Grading (maximum number of points 100)

Pre-exam obligations	**points**	**Final exam**	**points**
Colloquia	50	Oral exam	50