Study programmes: MASTER STUDIES - Mathematics

Course name: Geometric visualization

Lecturers: Srđan N. Vukmirović

Status: Optional

ECTS: 8

Attendance prerequisites: No prerequisites.

Course aims: Acquisition of general and specific knowledge about application of software packages in visualization of various geometrical and topological objects.

Course outcome: Upon completion of the course, the student has necessary knowledge and skills for the use of software packages in visualization of various geometrical and topological objects. Student is qualified to individual understanding basic examples and solving problems from this area.

Course content: Software packages for visualization (Mathematica, Javaview, OpenGL, WinGCLC, …). Parametrizations of curves and surfaces in space. Visualization of 4-dimensional objects. Visualization of topological objects. Visualization of non-Euclidean geometries. Visualization and description of geometric constructions.

Literature:

1. H. C. Hege, K. Polthier, Visualization and Mathematics, 2003, Springer.
2. G.K. Francis, A Topological Picturebook, 1987, Springer-Verlag.
3. W. Schroeder, K. Martin, B. Lorensen, The Visualization Toolkit, 1998, Prentice Hall.

Number of hours: 7	**Lectures**: 3	**Tutorials**: 2	**Laboratory**: -	**Research**: 2

Teaching and learning methods: Frontal / Tutorial

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	20	Written exam	-
Exercises / Tutorials	-	Oral exam	60
Colloquia	-	Written-oral exam	-
Essay / Project	20		