Study programmes: PhD – Mathematics

Course name: Regular polytopes

Lecturers: Zoran Lučić, Miroslava Antić, Mirjana Đ. Đorić, Srđan N. Vukmirović, Zoran P. Rakić

Status: Optional

ECTS: 9

Attendance prerequisites: -

Course aims: Acquisition of general and specific knowledge in theory of polygons and polytopes. Preparing student for individual scientific work: studying of literature theory of polygons and polytopes and gradually including student for individual research work.

Course outcome: Upon completion of the course, the student has necessary knowledge about notions: Polygons and polyhedra, rotation groups, tessellations, polytopes in higher space, the generalized kaleidoscope, the Petrie polygon, sections and projections and star polytopes. Student is qualified to individual understanding basic examples and solving problems from this theory.

Course content: Polygons and polyhedra. Regular and quasiregular polyhedra. Rotation groups. 2-dimensional and 3-dimensional tessellations. Kaleidoscopes. Star polyhedra. Polytopes in higher space. Cutting. Poincare's proof of Euler's formula. Forms, vectors and coordinates. The generalized kaleidoscopes. The generalized Petrie's polygons. Sections and projections. Star polytopes.

Literature:

1. H. S. M. Coxeter, Regular polytopes, 1963 Macmillan, New York, 2nd edition.

Number of hours: 10	**Lecures: 4**	**Tutorials: -**	**Laboratory: -**	**Research: 6**

Teaching and learning methods: Lectures/ Tutorials

Assessment (maximal 100 points)

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