Study programmes: PhD studies – Mathematics

Course name: Approximation theory with applications

Lecturers: Zorica Stanimirović

Status: Optional

ECTS: 9

Attendance prerequisites: -

Course aims: Introducing students with modern methods of approximation theory and training for creative work.

Course outcome: At the end of the course, a student has basic knowledge about contemporary methods of approximation theory. Further, student is able to independently solve real problems using the appropriate software.

Course content:
Mathematical preliminaries. Aproximation in Hilbert and Banach spaces. Mean squared approximation. Orthogonal polynomials. Least squares method. Fourier analysis Discrete Fourier transformation. Fast Fourier transformation. Wavelets. Application for signal and image processing. Uniform approximation.

Literature:
Natanson I.P., ***Constructive Function Theory (part I-III),*** Frederick Ungar Publishing, 1965.
Radunović D., ***Talasići,*** Akademska misao, 2005.
Strang G., Nguyen T., ***Wavelets and Filter Banks***, Willesley-Cambridge Press, 1996.

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

Teaching and learning methods: Frontal / Tutorials / Project

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	-	Written exam	-
Exercises / Tutorials	-	Oral exam	70
Colloquia	-	Written-oral exam	-
Essay / Project	30		