

Study programmes: PhD studies – Mathematics, Applied mathematics			
Course name: Numerical analysis 3			
Lecturers: Sandra Živanović, Aleksandra Delić			
Status: Optional			
ECTS: 9			
Attendance prerequisites: -			
Course aims: Introduction to the modern methods in numerical analysis and training for creative work.			
Course outcome: After completing this course, the student has fundamental knowledge about modern methods in numerical analysis. He is able to independently solve real problems using appropriate software.			
Course content: Model problems described by partial differential equations (traffic flow, heat conduction, oscillation of wire and membrane). Cauchy problems. Runge-Kutta methods. Boundary problems. Grid method. Mixed problems. Convergence. Stability. Error analysis. Singular problems. Conservation method. Multigrid algorithms.			
Literature:			
1. Richtmyer R.D., Morton K.W., <i>Difference Methods for Initial-Value Problems</i> , Wiley, 1967.			
2. LeVeque R.J., <i>Numerical Methods for Conservation Laws</i> , Birkhauser, 1990.			
3. Briggs W.L., Henson V.E., McCormik S.F., <i>A Multigrid tutorial</i> , SIAM, 2000.			
Number of hours: 10	Lecures: 4	Tutorials: 6	Laboratory: -
Research: -			
Teaching and learning methods: Frontal / Individual / Interactive / Tutorials / Lectures / Exercises			
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		