

Study program: Mathematics				
Type and level of studies: Undergraduate studies				
Course unit: Real Analysis				
The teacher in charge: Assistant Professor, Suzana Aleksić				
Language of instruction: English				
ECTS: 9 (nine)				
Prerequisites: /				
Semester: <i>Winter Semester</i>				
Course unit objective: This course covers some fundamentals of mathematical analysis: topology of real line, limits, continuity, differentiation, integration and series. It shows the utility of abstract concepts and teaches an understanding and construction of proofs.				
Course unit contents				
Lectures: Metric spaces \mathbf{R} (ball neighborhoods, open subsets, limit points, closed subsets, dense subsets); Convergence (convergent sequences; Cauchy sequences, completeness, compact subsets of \mathbf{R}); Separable space; Connectedness; Limits of functions, Continuity of real functions; Properties of Continuous Functions; Uniform continuity; Derivatives, the chain rule; Rolle's theorem; Mean value theorem; Taylor's theorem; L'Hospital's rule; The Riemann Integral: definition, basic properties; Fundamental theorems of calculus; Convergence of series of numbers using the Cauchy criterion, the comparison, ratio, and root tests; Convergence of alternating series; Dirichlet's and Abel's test.				
Practical teaching: study research work				
Literature				
1. W. Rudin, <i>Principles of Mathematical Analysis (International Series in Pure and Applied Mathematics)</i> , 3rd ed. McGraw-Hill, 1976.				
2. M. Spivak, <i>Calculus</i> , 4th ed. Publish or Perish, 2008.				
Number of active teaching hours				Other classes
Lectures: 4	Practice: 3	Other forms of classes: mentoring system 1	Independent work: 0	
Teaching methods				
Lectures in traditional manner using black board, discussions, consultation with the professor				
Examination methods (maximum 100 points)				
Exam prerequisites		No. of points:	Final exam	No. of points:
Student's activity during lectures		4	oral examinations	50
tests		46		
Grading system				
Grade	No. of points		Description	
10	91-100		Excellent	
9	81-90		Exceptionally good	
8	71-80		Very good	
7	61-70		Good	
6	51-60		Passing	
5	0-50		Failing	