Faculty of Science and Mathematics / MATHEMATICS AND COMPUTER SCIENCE / ANALYSIS 2

Course:	ANALYSIS 2			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
3978	Mandatory	2	8	4+3+0
Programs	MATHEMATICS AND COMPUTER SCIENCE			
Prerequisites	None.			
Aims	The aim of the course is for students to adopt and master the basics of mathematical analysis: limit theory, elements of differential and integral calculus and the theory of series.			
Learning outcomes	On successful completion of the course, students will be able to: 1. Define the basic notions of mathematical analysis 2: Riemann integral on a closed interval, area of a curvilinear trapezoid, curve and curve length, volume and area of a solid of revolution, improper integral, convergent series. 2. Derive basic propositions related to the Riemann and improper integral and convergent series. 3. Calculate the Riemann integral as a limit of the sequence of integral sums. 4. Examine and associate the properties of differentiability and integrability of functions of a real variable. 5. Apply some integral formulas. 6. Apply the acquired knowledge to solving different tasks related to the stated content of mathematical analysis. 7. Apply the acquired knowledge to solving real tasks and problems.			
Lecturer / Teaching assistant	Prof. dr Žarko Pavićević - lecturer, Nikola Konatar - teaching assistant			
Methodology	Lectures, exercises, homework assignments, consultations, written exams.			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Antiderivative on an open interval. Indefinite integral.			
I week exercises	Antiderivative on an open interval. Indefinite integral.			
II week lectures	Antiderivative on an interval. Indefinite integral on an interval.			
II week exercises	Antiderivative on an interval. Indefinite integral on an interval.			
III week lectures	Definition of the Riemann integral. Properties.			
III week exercises	Definition of the Riemann integral. Properties.			
IV week lectures	Criteria for the integrability of functions.			
IV week exercises	Criteria for the integrability of functions.			
V week lectures	Properties of the definite integral and integrable functions.			
V week exercises	Properties of the definite integral and integrable functions.			
VI week lectures	Integral and derivative. Some integral functions.			
VI week exercises	Integral and derivative. Some integral functions.			
VII week lectures	Review. First midterm exam.			
VII week exercises	Review. First midterm exam.			
VIII week lectures	Functions of bounded variation.			
VIII week exercises	Functions of bounded variation.			
IX week lectures	Applications of the definite integral.			
IX week exercises	Applications of the definite integral.			
X week lectures	Improper integral.			
X week exercises	Improper integral.			
XI week lectures	Series. Convergence of series.			
XI week exercises	Series. Convergence of series.			
XII week lectures	Criteria for the convergence of series with positive terms.			
XII week exercises	Criteria for the convergence of series with positive terms.			
XIII week lectures	Functional sequences and series. Uniform convergence.			

XIII week exercises	Functional sequences and series. Uniform convergence.
XIV week lectures	Review. Second midterm exam.
XIV week exercises	Review. Second midterm exam.
XV week lectures	Some applications of Mathematical analysis in natural sciences.
XV week exercises	Some applications of Mathematical analysis in natural sciences.
Student workload	

Per week	**Per semester**
8 credits x 40/30=10 hours and 40 minuts 4 sat(a) theoretical classes 0 sat(a) practical classes 3 excercises **3 hour(s) i 40 minuts** of independent work, including consultations	Classes and final exam: **10 hour(s) i 40 minuts x 16 =170 hour(s) i 40 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **10 hour(s) i 40 minuts x 2 =21 hour(s) i 20 minuts** Total workload for the subject: **8 x 30=240 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **48 hour(s) i 0 minuts** Workload structure: **170 hour(s) i 40 minuts (cources), 21 hour(s) i 20 minuts (preparation), 48 hour(s) i 0 minuts (additional work)**
Student obligations	Students are required to attend classes, do the homework assignments and take both midterm exams.
Consultations	As agreed with students.
Literature	V. I. Gavrilov,Ž. Pavićević, Matematička analiza I, D. Adnađević, Z. Kadelburg, Matematička analiza 2, I.M. Lavrentjev, R. Šćepanović, Zbirka zadataka iz mat. analize I, B.P. Demidovič: Zbirka zadataka iz matematičke analize.
Examination methods	Two homeworks or tests are graded with 8 points (4 points for each homework or test). 2 points are awarded for attendance to lectures and exercises. Two midterm exams are graded with 20 points each (40 points in total). Final exam - 50 points. A passing grade is awarded to students who accumulate at least 50 points.
Special remarks	
Comment	

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points