COURSE NAME	Mathematical analysis I						
Code	PMM713	Year of study	1st year of undergraduate study				
Course teacher	Vlasta Matijević	Credits (ECTS)	5				
Associate teachers		Type of instruction (number of hours)	L	S	E		
			30		30		
Status of the course	Compulsory	Percentage of application of e-learning	0				
COURSE DESCRIPTION							
Course objectives	The aim of the course is to introduce students with basic concepts and results of differential and integral calculus of real-valued functions of single real variable and to teach them how to apply these knowledges in solving various (geometric) problems.						
Course enrolment requirements and entry competences required for the course	Prerequisite course: Introduction to mathematical analysis						
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	The student is able to: define basic terms, accurately state the claims and theorems of the course, present proofs of simpler statements, distinguish and give examples of differentiable and nondifferentiable functions, integrable and non-integrable functions, apply techniques for computing derivatives of real functions, and definite and indefinite integrals of real functions, determine the intervals of monotonicity and convexity / concavity of a function and local extrema using differential calculus, identify conditions for the power series representation of a function, apply integral calculus to solve various geometric problems						
Course content broken down in detail by weekly class schedule (syllabus)	Differential calculus – 15 hours(differentiability, derivatives of elementary functions, derivatives of higher orders, basic theorems of differential calculus, differentiability of a series of functions, Taylor's formula, intervals of monotonicity and convexity/concavity, local extrema) Integral calculus – 15 hours(concept and basic properties of definite and indefinite integrals, the integration of certain classes of functions, basic theorems of integral calculus, Newton – Leibniz formula, integrability of a series of functions, applications of definite integrals, improper integral)						
Format of instruction	Lectures and exercises						
Student responsibilities	Lectures and exercises attendance						

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Lectures and exercises attendance: 1 ECTS. Written and oral exam: 4 ECTS.
Grading and evaluating student work in class and at the final exam	The exam is taken in written and oral form. Passing grade on a written form of the exam is a requirement for the oral exam. The written form of the exam can be taken partially, during class, if specified in the curriculum.
Required literature (available in the library and via other media)	1. S. Abbott, *Understanding analysis*, Springer-Verlag, New York, 2001. 2. S. Kurepa, *Matematička analiza 1: Funkcije jedne varijable*, Tehnička knjiga, Zagreb, 1990. 3. S. Kurepa, *Matematička analiza 2: Diferenciranje i integriranje*, Tehnička knjiga, Zagreb, 1989. 4. B.P. Demidovič, *Zadaci i riješeni primjeri iz više matematike*, Zagreb, 1990.
Optional literature (at the time of submission of study programme proposal)	1. S.G. Ghorpade, B.V. Limaye, *A course in calculus and real analysis*, Springer, New York, 2006. 2. S. Lang, *A first Course in Calculus*, 5th ed., Springer, 1986.
Quality assurance methods that ensure the acquisition of exit competences	Statistics of exam results and student evaluation via anonymous questionnaires at the end of the course. The survey is conducted according to the rules of the University of Split.
Other (as the proposer wishes to add)	