COURSE NAME	Introduction to mathematical analysis					
Code	PMM103	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 to some basic notions and theorems of real analysis using strict and formal mathematical language. Sequences and series of real numbers and real-valued functions of single real variable, limit and continuity are studied in detail. This course represents the necessary basis for more advanced topics in mathematical analysis.
Course enrolment requirements and entry competences required for the course	Required competences: good knowledge of highschool math

Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	The student is able to:
	 - axiomatically define the ordered field of real numbers
	 - describe the metric space of real numbers
	 - recognize algebraic, order and metric properties of subsets of real numbers
	 - distinguish and give examples of
	    convergent and divergent sequences and series of real numbers;
	    convergent and divergent sequences and series of real functions, particularly those of the power series;
	    pointwise and uniform convergence of sequences and series of real functions;
	    continuous, uniformly continuous and discontinuous real-valued functions.

Course content broken down in detail by weekly class schedule (syllabus)	The space of real numbers – 6 Sequences and series of real numbers (convergence, limits calculus, subsequences, series convergence tests) - 8 Limit, continuity and uniform contnuity of real functions (definitions and characterizations, limits in the extended space of real numbers, properties of continuous functions) - 10 Sequences and series of real functions (pointwise and uniform convergence, convergence of sequences and series of continous real functions, power series) - 6
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. 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)	