

COURSE NAME		Introduction to Mathematics			
Code	PMM830	Year of study	1st undergraduate study		
Course teacher	Snježana Braić	Credits (ECTS)	8,0		
Associate teachers		Type of instruction (number of hours)	L	S	E
			45		45
Status of the course	Compulsory course	Percentage of application of e-learning	30%		
COURSE DESCRIPTION					
Course objectives	<p>Course objective is to ease the student's transition from elementary mathematical knowledge to systemic elaboration and precise notation of different subjects of mathematical content which will be further studied through the courses of the program.</p> <p>Students will learn the basics of mathematical language and writing and be introduced to the ways of mathematical thinking. Some already acquired knowledges about sets, relations, functions and number sets will be systematically renewed and expanded, with special attention given to precise defining and writing of basic concepts. Students will be introduced to axiomatic foundation of the set of natural numbers, and based on that they will learn to construct the sets of whole, rational and real numbers. They will refresh, consolidate and deepen their knowledge about complex numbers and elementary functions.</p>				
Course enrolment requirements and entry competences required for the course	None.				
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>Students will be able to:</p> <ul style="list-style-type: none"> - use the mathematical language and writing; build their way of mathematical thinking - accurately state the theorems and prove them using a direct or an indirect proof - precisely write and interpret the formulas of propositional logic and first-order logic - axiomatically define the set of natural numbers, and from that construct the sets of whole, rational and real numbers - use sets and relations accurately - define relations and explore its properties; recognize an equivalence relation and relations of partial and total order - categorize a function and explore its properties - list and analyze basic elementary functions and elementary functions; use this knowledge to solve practical exercises 				
Course content broken down in detail by weekly class schedule (syllabus)	<ul style="list-style-type: none"> - Historical development of mathematics and basic mathematical disciplines – 1 hour - The building blocks of mathematics: axioms, theorems, proofs – 2 hours - Introduction to mathematical logic: propositional logic and first-order logic – 3 hours - Naive set theory: describing a set, Boolean operations on sets, Cartesian product – 2 hours - Homogenous binary relations, equivalence relations, relations of partial order – 5 hours - Binary relations, functions – 5 hours 				

	<ul style="list-style-type: none"> - Axiomatic construction of the set of natural numbers, mathematical induction, operations of addition and multiplication and their properties – 6 hours - Construction of the set of whole numbers – 4 hours - Construction of the set of rational numbers – 4 hours - Construction of the set of real numbers; properties – 6 hours - The set of complex numbers – 2 hours - Basic elementary functions and elementary functions – 5 hours
Format of instruction	Lectures, exercises.
Student responsibilities	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)	Attendance – 3 ECTS Colloquium – 2 ECTS Oral exam – 3 ECTS
Grading and evaluating student work in class and at the final exam	The exam which requires solving practical and theoretical problems is taken in written form and is followed by an oral theoretical exam. A passed written exam is a prerequisite for the oral exam. The written exam can be taken partially, in two parts, during class.
Required literature (available in the library and via other media)	<ol style="list-style-type: none"> 1. M. Klaričić Bakula, S. Braić, textbook of PMF, Split 2. B. Pavković, D. Veljan, <i>Elementarna matematika</i> 1, Školska knjiga, Zagreb, 2003. 3. B. Pavković, B. Dakić, <i>Polinomi</i>, Školska knjiga, Zagreb, 1991. 4. S. Kurepa, <i>Uvod u matematiku</i>, Tehnička knjiga, Zagreb, 1984.
Optional literature (at the time of submission of study programme proposal)	D. Blanuša, <i>Viša matematika</i> , I dio, Tehnička knjiga, Zagreb, 1965 S. Mardešić, <i>Matematička analiza</i> , 1. dio, Školska knjiga, Zagreb, 1979. N. J. Vilenkin, <i>Priče o skupovima</i> , Školska knjiga, Zagreb, 1975. S. Lipschutz, <i>Schaum's Outline of Set Theory and Related Topics</i> , McGraw-Hill, New York, 1998. Š. Znam i dr., <i>Pogled u povijest matematike</i> , Tehnička knjiga, Zagreb, 1989.
Quality assurance methods that ensure the acquisition of exit competences	Statistics of test 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)	