<table>
<tr><td>COURSE NAME</td><td colspan="5">Introduction to Mathematics</td></tr>
<tr><td>Code</td><td>PMM709</td><td>Year of study</td><td colspan="3">1st undergraduate study</td></tr>
<tr><td>Course teacher</td><td>Snježana Braić</td><td>Credits (ECTS)</td><td colspan="3">8,0</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2"></td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>E</td></tr>
<tr><td>45</td><td></td><td>45</td></tr>
<tr><td>Status of the course</td><td>Compulsory course</td><td>Percentage of application of e-learning</td><td colspan="3">30%</td></tr>
<tr><td colspan="6">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="5">Course objective is to ease the student's transition from elementary mathematical knowlege to subjects of mathematical content which will be further studied throught the courses of the program.

Students will learn the basics of mathematical language and writing. Some already accuired knowleges about sets, relations and number sets will be sistematicaly renewed and expanded, with precise defining and writing of basic concepts. Special attention will be given to elementary functions, their definitons and properties. 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, real and complex numbers. More complicated proofs will be shown throug basic concepts and ideas, adapted to programme for teachers.</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="5">None.</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="5">Students will be able to:
- use the mathematical language and writing; build their way of mathematical thinking
- accuratly state the theorems and basic idea of proof
- precisely write and interpret the formulas of propositional logic and first-order logic
- axiomaticaly define the set of natural numbers, and from that construct the sets of whole, rational, real and complex 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 excercises</td></tr>
<tr><td>Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="5">- Historical development of mathematics and basic mathematical disciplines – 1 hour
- The building blocks of mathematics: axioms, theorems, proofs – 4 hours
- Introduction to mathematical logic – 4 hours
- Naive set theory: describing a set, Boolean operations on sets, Cartesian product – 3 hours
- Homogenous binary relations, equivalence relations, relations of partial order – 6 hours
- Binary relations, functions – 6 hours
- Basic elementary functions and elementary functions – 6 hours
- Axiomatic construction of the set of natural numbers, mathematical induction, operations of addition and multiplication and their properties – 3</td></tr>
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	hours - Construction of the set of whole numbers – 2 hours - Construction of the set of rational numbers – 2 hours - Construction of the set of real numbers; properties – 5 hours - The set of complex numbers – 3 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 partialy, in two parts, during class.
Required literature (available in the library and via other media)	1. M. Klaričić Bakula, S. Braić, textbook of PMF, Split 2. B. Pavković, D. Veljan, *Elementarna matematika* 1, Školska knjiga, Zagreb, 2003. 3. B. Pavković, B. Dakić, *Polinomi*, Školska knjiga, Zagreb, 1991. 4. S. Kurepa, *Uvod u matematiku*, Tehnička knjiga, Zagreb, 1984.
Optional literature (at the time of submission of study programme proposal)	D. Blanuša, *Viša matematika*, I dio, Tehnička knjiga, Zagreb, 1965 S. Mardešić, *Matematička analiza*, 1. dio, Školska knjiga, Zagreb, 1979. N. J. Vilenkin, *Priče o skupovima*, Školska knjiga, Zagreb, 1975. S. Lipschutz, *Schaum's Outline of Set Theory and Related Topics*, McGraw-Hill, New York, 1998. Š. Znam i dr., *Pogled u povijest matematike*, 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)	