<table>
<tr><td>COURSE NAME</td><td colspan="5">Introduction to mathematical analysis</td></tr>
<tr><td>Code</td><td>PMM711</td><td>Year of study</td><td colspan="3">1st year of undergraduate study</td></tr>
<tr><td>Course teacher</td><td>Goran Erceg</td><td>Credits (ECTS)</td><td colspan="3">5</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>30</td><td></td><td>30</td></tr>
<tr><td>Status of the course</td><td>Compulsory</td><td>Percentage of application of e-learning</td><td colspan="3">0</td></tr>
<tr><td colspan="6">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="5">Students will:
- acquire a fundamental knowledge about the space of real numbers using formal mathematical language, with emphasis on the examples
- be introduced to the sequences and series of real numbers and learn to examine their convergence
- learn notions of limit and continuity of a real-valued function of single real variable
- learn theorems of the properties of a continuous real-valued function of single real variable defined on unit segment
- be introduced to the notions of sequences and series of real-valued functions of single real variable
- learn to examine convergence of the power series</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="5">Required competences: good knowledge of highschool math</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="5">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;
continuous, uniformly continuous and discontinuous real-valued functions;
convergent and divergent sequences and series of real functions, particularly those of the power series;
-examine pointwise and uniform convergence of sequences and series of real functions.</td></tr>
<tr><td>Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="5">The space of real numbers – 6
Sequences and series of real numbers (convergence, limits calculus, subsequences, series convergence tests) - 9
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) - 5</td></tr>
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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)	