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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of sciences and mathematics |
| **GENERAL INFORMATION** |
| Study program  | **Mathematics** |
| Study Module (if applicable) | General mathematics |
| Course title | Set theory |
| Level of study | ☐Bachelor x ☐ Master’s ☐ Doctoral |
| Type of course | x☐ Obligatory ☐ Elective |
| Semester  |  x☐ Autumn ☐Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 7.5 |
| Name of lecturer/lecturers | Vladimir Pavlović / Marija S. Cvetković |
| Teaching mode |  x☐Lectures ☐Group tutorials ☐ Individual tutorials ☐Laboratory work ☐ Project work ☐ Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Acquiring general knowledge in and concepts of Set theory as well as enabling students to successfully apply it when needed in other courses.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **ZFC theory: formal theories, formal deductions, the ZFC axioms; well-orders; ordinals; the theorem on induction and recursion on the class of ordinals; elementary operations over ordinals; the cumulative hierarchy and the axiom of regularity; some equivalents of AC (the axiom of choice); the theorem on transfinite induction and recursion on well-founded relations.****Cardinals: cardinals as initial ordinals; definition of the cardinality of a set without using AC; elementary operations over cardinals; stationary sets; the pressing-down lemma; almost disjoint families of sets; the delta-system lemma; ultrafilters; some partition theorems.****Applications: some inequalities between certain cardinal invariants of topological spaces; Hamel bases of linear spaces; the orthogonal dimension of Hilbert spaces; the measure problem.** |
| **LANGUAGE OF INSTRUCTION** |
| x☐Serbian (complete course) ☐ English (complete course) ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)☐Serbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points** | **Final exam** | **points** |
| **Activity during lectures** | **5** | **Written examination** | **0** |
| **Practical teaching** | **0** | **Oral examination** | **55** |
| **Teaching colloquia** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |