|  |
| --- |
|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | **Faculty of Sciences and Mathematics** |
| **GENERAL INFORMATION** |
| Study program  | **Mathematics** |
| Study Module (if applicable) |  |
| Course title | **Quantum Algebraic Structures** |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [ ]  Autumn [ ] Spring |
| Year of study  |  |
| Number of ECTS allocated | 12.00 |
| Name of lecturer/lecturers | **Miroslav Ćirić** |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The purpose of course is to master the basic knowledge on quantum algebraic structures and their applications in quantum logic and quantum computation. Upon completion of the course, the student should gain a thorough know-ledge of quantum algebraic structures, and to be able to independently apply this knowledge in other mathematical and scientific disciplines.  |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Ordered sets, lattices, orthomodular ordered sets, orthomodular lattices, partially ordered sets with a difference (D-posets), effect algebras, residuated lattices, MV-algebras, pseudo-effect algebras, quantum algebras and fuzzy sets, basic algebra, Hilbert lattices, quantum logic, algebraic semantics of quantum logic, quantum computing.  |
| **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** | **10** | **Written examination** | **–** |
| **Practical teaching** | **20** | **Oral examination** | **70** |
| **Teaching colloquia** | **–** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |