|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of sciences and mathematics | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | **Mathematics** | | |
| Study Module (if applicable) | | | | Algebras of operators in quantum mechanics | | |
| Course title | | | | Methods of mathematics in physics | | |
| Level of study | | | | ☐Bachelor x ☐ Master’s ☐ Doctoral | | |
| Type of course | | | | ☐ Obligatory x☐ Elective | | |
| Semester | | | | Autumn x ☐Spring | | |
| Year of study | | | | 2 | | |
| Number of ECTS allocated | | | | 7.5 | | |
| Name of lecturer/lecturers | | | | Dragan S. Đorđević | | |
| Teaching mode | | | | x☐Lectures ☐Group tutorials ☐ Individual tutorials  ☐Laboratory work ☐ Project work ☐ Seminar  ☐Distance learning ☐ Blended learning ☐ Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| *Students will master conformal mapping, analytic continuation, approximation theorems and harmonic functions.* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| **C\*-algebras, spectrum and resolvent, positive, selfadjoint and normal elements. States. Commutative C\*-algebras**  **W\*-algebras, norm convergence, weak and strong convergence in the algebra of bounded operators on Hilbert spaces. Normal states and preduals.**  **Application: Continuous quantum systems, Fock space, relations in continuous quatum systems, Bogolubov transformation, C\*- and W\*- dynamical systems.** | | | | | | |
| **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** | **0** | | **Written examination** | | | **0** |
| **Practical teaching** | **0** | | **Oral examination** | | | **60** |
| **Teaching colloquia** | **40** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |