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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 | Theory of operators |
| 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 | Dragana Cvetković-Ilić / Jovana Nikolov |
| 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 Theory of operator as well as enabling students to successfully apply it when needed in other courses.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Operators on the Hilbert space:** Hilbert-adjoint operator. Hermitian, normal, unitary and positive operators. Square root of the positive operator. Projection and orthogonal projector. Partial isometry. Polar decomposition of operators. Hermitian operator as the difference of two positive operators. **Operators on the Banach space**: Adjugate operators. Operators with the clsed range. |
| **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** | **20** |
| **Practical teaching** | **0** | **Oral examination** | **20** |
| **Teaching colloquia** | **60** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |