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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) |  |
| Course title | Banach algebras and spectra |
| Level of study | ☐Bachelor ☐ Master’s x☐ Doctoral |
| Type of course | ☐ Obligatory x☐ Elective |
| Semester  |  ☐ Autumn ☐Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 12 |
| Name of lecturer/lecturers | Vladimir Rakočević |
| Teaching mode |  x☐Lectures ☐Group tutorials ☐ Individual tutorials ☐Laboratory work ☐ Project work ☐ Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |

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| *Students will master fundamental results in spectral theory in Banach algebras.* |

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| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |

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| Invertible elements in Banach algebras, perturbations, continuity, one-sided invertibility, left and right spectrum. Spectrum. Approximate point spectrum, continuous spectru. Residual spectrum. Functional calculus in Banach algebras. Spectra in C\*-algebras. Spectra of special operators: selfadjoint, normal, compact. |

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| **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** | **70** |
| **Teaching colloquia** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |