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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** | | | |