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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Science and Mathematics |
| **GENERAL INFORMATION** |
| Study program  | **Mathematics** |
| Study Module (if applicable) |  |
| Course title | Stability Theory of Stochastic Differential Equations |
| Level of study | ☐Bachelor ☐ Master’s x Doctoral |
| Type of course | ☐ Obligatory x Elective |
| Semester  |  x Autumn ☐Spring |
| Year of study  | II |
| Number of ECTS allocated | 12 |
| Name of lecturer/lecturers | Prof. dr Miljana Jovanović |
| Teaching mode |  xLectures ☐Group tutorials ☐ Individual tutorials ☐Laboratory work ☐ Project work ☐ Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Fundamental knowledge in stability of stochastic differential equations, stochastic functional differential equations, stochastic delay differential equations and neutral stochastic functional differential equations. Students are prepared to investigate a current theory of stability of various stochastic differential equations and to apply it in some other disciplines.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| • Stability of stochastic differential equations in probability and the almost sure stability.• The stochastic version of the Lyapunov's approach. Lyapunov's functionals.• The exponentional stability: almost sure stability and moment exponential stability.• Stochastic stabilization and destabilization.• Stability of stochastic functional differential equations.• Stability of stochastic differential delay equations.• Stability of neutral stochastic functional differential equations. |
| **LANGUAGE OF INSTRUCTION** |
| xSerbian (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** |  | **Written examination** | **35** |
| **Practical teaching** |  | **Oral examination** | **35** |
| **Teaching colloquia** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |