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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 | | | | Qualitative theory of difference equations | | |
| Level of study | | | | Bachelor  Master’s  Doctoral | | |
| Type of course | | | | Obligatory  Elective | | |
| Semester | | | | Autumn Spring | | |
| Year of study | | | | II | | |
| Number of ECTS allocated | | | | 12 | | |
| Name of lecturer/lecturers | | | | Jelena V. Manojlović | | |
| Teaching mode | | | | Lectures Group tutorials  Individual tutorials  Laboratory work  Project work  Seminar  Distance learning  Blended learning  Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| *Course provides most important techniques in discrete calculus and an introduction to oscillation theory and qualitative properties of solutions of linear and nonlinear second-order difference equations* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| *Discrete calculus.* Methods of linear discrete oscillation theory (Riccati technique, averaging technique, variation principle). Sturmian discrete theory. Oscillation and nonoscillation criteria for second-order linear difference equations. Oscillation criteria for second-order nonlinear difference equations. Asymptotic properties of nonoscillatory solutions of  second-order nonlinear difference equations. | | | | | | |
| **LANGUAGE OF INSTRUCTION** | | | | | | |
| 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** |  | | **Written examination** | | |  |
| **Seminars** | **20** | | **Oral examination** | | | **80** |
| **Teaching colloquia** |  | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |