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| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Pedagogical Faculty Vranje | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | Primary School Teaching | | |
| Study Module (if applicable) | | | | / | | |
| Course title | | | | Elementary Number Theory | | |
| Level of study | | | | ☒Bachelor ☐ Master’s ☐ Doctoral | | |
| Type of course | | | | ☐ Obligatory☒ Elective | | |
| Semester | | | | ☒ Autumn ☐Spring | | |
| Year of study | | | | First | | |
| Number of ECTS allocated | | | | 3 | | |
| Name of lecturer/lecturers | | | | Milena Bogdanović, Ph.D | | |
| Teaching mode | | | | ☒Lectures ☒Group tutorials ☐ Individual tutorials  ☐Laboratory work ☐ Project work ☒ Seminar  ☐Distance learning ☒ Blended learning ☐ Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| Acquiring basic knowledge about basic concepts, ideas and methods of elementary number theory with special emphasis on whole numbers, the basic problems of elementary number theory and form of settlement, the application of integers in other areas of mathematics and Computer Science, the simple application of the statements that prove during the course of the direct and indirect manner of proving the statements of others and develop logical thinking and ability to solve mathematical problems and the implementation and verification of knowledge in practice. | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| Historical development of the theory of numbers, divisibility of integers, divisibility algorithm, Primes, and the common denominator seeders, Euclidean algorithm, the basic attitude of arithmetic, Linear Diophantine equations, Pythagorean triples, congruence on a given module properties of congruence, Linear congruencies, Chinese theorem of the rest, Quadratic residues, divisibility tests, systems of linear congruence, Wilson theorem, Fermat's Little (Fermat) theorem, Euler function, properties of Euler function, primitive root of the term and theorems on the number of primitive roots Lagrange (Lagrange) theorems, primitive roots sheer number, Dirichlet theorem, Continued fractions, Pell-term of this equation and the existence of solutions, Norma and divisibility Gaussian integers, Only natural number as a sum of two squares, Application of Gaussian integers in determining primitive Pythagorean triples. | | | | | | |
| **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** | **10** | | **Written examination** | | |  |
| **Practical teaching** | **20** | | **Oral examination** | | | **40** |
| **Teaching colloquia** | **30** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |