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| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of Electronic Engineering | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | Electrical Engineering and Computing | | |
| Study Module (if applicable) | | | | Applied Mathematics | | |
| Course title | | | | Coding Theory and Cryptography | | |
| Level of study | | | | ☐Bachelor ☐ Master’s x☐ Doctoral | | |
| Type of course | | | | ☐ Obligatory x☐ Elective | | |
| Semester | | | | x☐ Autumn ☐Spring | | |
| Year of study | | | | 2. | | |
| Number of ECTS allocated | | | | 10 | | |
| Name of lecturer/lecturers | | | | Perić H. Zoran, Milović M. Daniela | | |
| Teaching mode | | | | x☐Lectures ☐Group tutorials ☐ Individual tutorials  ☐Laboratory work x☐ Project work ☐ Seminar  ☐Distance learning ☐ Blended learning ☐ Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| This course familiarizes students with latest achievements and research issues in source coding, channel and line coding, error-correcting codes and cryptography. Students adopt basic principles of coding theory and learn to design advanced coding algorithms. In addition, students will be able to follow the latest developments of cryptography. | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| Source coding theorem (Shannon's first theorem). Fixed and variable-length coding (Huffman, GolombRice coding). Data compression. Discrete channel model and channel capacity. Channel coding theorem ((Shannon's second theorem). Linear block codes, interleaving. Cyclic codes. Turbo codes. Introduction to cryptography. Symmetric key encryption. Public key cryptography. Hash functions. Digital signature. Quantum cryptography. | | | | | | |
| **LANGUAGE OF INSTRUCTION** | | | | | | |
| x☐Serbian (complete course) x☐ 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** | | |  |
| **Practical teaching** | **50** | | **Oral examination** | | | **50** |
| **Teaching colloquia** |  | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |