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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) | Telecommunications |
| Course title | Error Control Coding |
| Level of study | x☐Bachelor ☐ Master’s ☐ Doctoral |
| Type of course | x☐ Obligatory ☐ Elective |
| Semester  | x☐ Autumn ☐Spring |
| Year of study  | 4. |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Jovanović Ž. Aleksandra |
| Teaching mode | x☐Lectures ☐Group tutorials ☐ Individual tutorialsx☐Laboratory work ☐ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The goal is to introduce students with design algorithms for efficient error correction codes and with the appropriate methods of decoding. Student who passes the final exam has necessary theoretical and practical knowledge for the design and implementation of the error control codes in modern communication systems. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Linear block codes, matrix description and syndrome. Standard array and weight distribution. Product codes. Codes generated from Hadamard matrices. Reed-Muller codes. Cyclic codes. BCH and Reed–Solomon codes. Trellis decoding of linear block codes. Recursive systematic convolutional codes, descriptions, decoding and performance. Punctured convolutional codes. ARQ schemes for providing high transmission reliability. Trellis coded modulation. Cascade codes and iterative decoding. Turbo codes, descriptions, decoding and performance. Low-density parity-check codes. LDPC codes, LDPC codes descriptions by means of graphs, decoding and performance. |
| **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** | **5** | **Written examination** | **20** |
| **Practical teaching** | **15** | **Oral examination** | **20** |
| **Teaching colloquia** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |