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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 | | | | Digital Signal Processing | | |
| Level of study | | | | ☐Bachelor ☐ Master’s x☐ Doctoral | | |
| Type of course | | | | ☐ Obligatory x☐ Elective | | |
| Semester | | | | x☐ Autumn ☐Spring | | |
| Year of study | | | | 1. | | |
| Number of ECTS allocated | | | | 10 | | |
| Name of lecturer/lecturers | | | | Perić H. Zoran, Dončov S. Nebojša | | |
| 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)** | | | | | | |
| The acquisition of theoretical knowledge, introduction to modern achievements and research in the field of digital signal processing. Extending the theoretical knowledge and ability to solve problems in the field of digital signal processing. | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| Algorithms of direct and inverse fast Fourier transforms. Direct and inverse z-transforms Discrete transfer functions. Discrete transforms (DCT, DFT, DWT). Digital recursive and non-recursive filters and their realizations. Wave digital filters and realizations. Analysis in the time and frequency domain. Application of digital filters in the constructions of linear fixed and adaptive predictors. Discrete signal parameters estimation. The foundation of digital signal processing required for sub-coding (filter banks). Digital signal processors for filter realizations. Program package for digital signal processing MATLAB. | | | | | | |
| **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** | | | | | | |