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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | **Electronics and Microsystems** |
| Study Module (if applicable) | Electronics |
| Course title | Time Frequency Analysis |
| Level of study | [ ] Bachelor [x]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [ ]  Autumn [x] Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Vlastimir Pavlovic, Milić N. Dejan, Goran Stancic |
| Teaching mode |  [x] Lectures [x] Group tutorials [x]  Individual tutorials [ ] Laboratory work [x]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Introduction to the principles, theories and algorithms for time-frequency and spatial-frequency signal analysis. Introduction to different signal processing techniques as well as multilateral signal parameter estimation.  |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Introduction to array theory. Mathematical signal models on sensor array. Techniques for signal source localization. Closed space source localization. Spatial frequency canal models. Principles of united spatial-time spectrum sensing. Examples of analysis in communication systems, optical systems for data transmission, analysis of radar and biomedical signals. Fourier analysis, linear time-frequency analysis, square time-frequency analysis, high order time-frequency analysis, analysis of nonstationary signals and noise.  |
| **LANGUAGE OF INSTRUCTION** |
| [x] Serbian (complete course) [ ]  English (complete course) [ ]  Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)[x] Serbian with English mentoring [ ] Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points** | **Final exam** | **points** |
| **Activity during lectures** | **20** | **Written examination** | **10** |
| **Practical teaching** |  | **Oral examination** | **20** |
| **Teaching colloquia** | **50** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |