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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Telecommunications |
| Study Module (if applicable) | Telecommunications and Signal Processing |
| Course title | Sound Processing and Synthesis |
| Level of study | [ ] Bachelor [x]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Ćirić G. Dejan, Nikolić R. Jelena |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [x] Laboratory work [x]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Acquiring modern theoretical knowledge and skills in the field of audio signals (sound) and their processing, application of audio systems, audio coding and sound synthesis.Theoretical knowledge related to audio signal processing, sound design and synthesis; Application of theoretical knowledge. Advanced usage of audio equipment and appropriate software. Skills in audio signal processing and sound synthesis*.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Audio signals (sound) - digitalization, filtering, analysis, dynamic processing, modification in time, pitch modification, sample rate conversion. Digital audio (characteristics, applications). Audio effects and their application. Speech signal processing. Binaural hearing and subjective effects. Three-dimensional sound (stereo technique, binaural technique, multi-channel approach). Sound synthesis (FM, wavetable, subtractive, additive and synthesis based on phase distortion). Virtual auditory environment. Perceptual (audio) coding. Audio compression and standards**.** |
| **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** | **25** |
| **Practical teaching** | **30** | **Oral examination** | **25** |
| **Teaching colloquia** | **15** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |