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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 | Digital Image Processing |
| Level of study | ☐Bachelor x☐ Master’s ☐ Doctoral |
| Type of course | x☐ Obligatory ☐ Elective |
| Semester  | x☐ Autumn ☐Spring |
| Year of study  | 1. |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Perić H. Zoran, Jovanović Ž. Aleksandra, Nikolić R. Jelena |
| Teaching mode | x☐Lectures ☐Group tutorials ☐ Individual tutorialsx☐Laboratory work x☐ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The aim of the course is to gain the knowledge about the characteristics of image and video signals, as well as the knowledge about the tools for their analysis and processing. Student who passes the final exam is able to perform the analysis, processing and compression of image and video signals. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Formation of a digital image. Digitizing the images and basic image features (mean value, standard variance, histogram). Objective and subjective measures of image quality. Image transformations (DCT, DFT, WT). Image quality improvement. Operations on pixels. Spatial operations in image processing. Transform domain operations. Image restoration techniques. Image compression. Lossless compression. Predictive techniques for image compression. Transform domain operations for image compression. Video compression. Video compression using motion compensation. Video compression standards (H.261, H.263, MPEG-1, MPEG-2, MPEG-4). Edge detection. Image segmentation. |
| **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** | **25** | **Oral examination** | **20** |
| **Teaching colloquia** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |