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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 | Coherent telecommunication systems |
| 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 | 6 |
| Name of lecturer/lecturers | Milić N. Dejan, Milović M. Daniela |
| Teaching mode |  [x] Lectures [x] Group tutorials [ ]  Individual tutorials [x] Laboratory work [x]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Acquiring basic theoretical knowledge in the area of reference carrier extraction and phase-locked loops.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Comparison of coherent and incoherent detection of digital signals. Reference carrier extraction and phase-locked loops: VCO, phase detectors, loop filters. Properties and types of PLL and performance analysis. Homodyne and heterodyne detection. Self-homodyne detection. Phase and frequency modulation techniques, QAM, continuous phase modulations. Noise and interference analysis. Receiver performance. Multichannel coherent systems. Weakly coherent systems, phase noise, coherent detection of optical signals.** |
| **LANGUAGE OF INSTRUCTION** |
| [x] Serbian (complete course) [x]  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** | **5** | **Written examination** | **30** |
| **Practical teaching** | **15** | **Oral examination** | **20** |
| **Teaching colloquia** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |