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| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of Electrical Engineering | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | Electrical Engineering and Computing | | |
| Study Module (if applicable) | | | | Telecommunications | | |
| Course title | | | | Electrical Circuits and Signals | | |
| Level of study | | | | ☒Bachelor ☐ Master’s ☐ Doctoral | | |
| Type of course | | | | ☒ Obligatory☐ Elective | | |
| Semester | | | | ☒ Autumn ☐Spring | | |
| Year of study | | | | 2 | | |
| Number of ECTS allocated | | | | 6 | | |
| Name of lecturer/lecturers | | | | Marković V. Vera, Dončov S. Nebojša | | |
| Teaching mode | | | | ☒Lectures ☐Group tutorials ☐ Individual tutorials  ☒Laboratory work ☐ Project work ☐ Seminar  ☐Distance learning ☐ Blended learning ☐ Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| Acquiring of basic theoretical knowledge in the analysis of analog and digital circuits and signals. Ability to apply theoretical knowledge in solving real problems in analysis of electrical circuits and signals. Training for the use of software for analysis of analog and digital electrical circuits and signals. | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| Signal classifications, definitions and examples. The unit step function and the delta function. Network characterization. Two-port networks: models and their combinations. Parameters of terminated two-port networks. Common two-port passive networks. Transient analysis of electrical circuits. Classical method of transient analysis. Response calculation with Laplace transformation. The Inverse Laplace transformation. Frequency response on periodic excitations. Resonance and antiresonance. Frequency-domain harmonic analysis. Elementary disrcrete signals. Recursive and nonrecurzive discrete networks and their basic elements. Network analysis with difference equation and inverse z-transformation.Solving of real problems during the exercises. Solving of problems using software packages. | | | | | | |
| **LANGUAGE OF INSTRUCTION** | | | | | | |
| ☐Serbian (complete course) ☒ 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** | **5** | | **Oral examination** | | | **20** |
| **Teaching colloquia** | **50** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |