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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | **Computing and Informatics** |
| Study Module (if applicable) | Computer engineering |
| Course title | VoIP Networks |
| Level of study | ☐Bachelor ☑ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory ☑ Elective |
| Semester  |  ☑ Autumn ☐Spring |
| Year of study  | 1 |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Ćirić M. Vladimir, Dimitrijević M. Aleksandar |
| Teaching mode |  ☑Lectures ☐Group tutorials ☐ Individual tutorials☑Laboratory work ☑ Project work ☑ Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Overview of available standards and protocols on which the Internet telephony is based. Architecture of VoIP networks. Students should be familiar with the components and architecture of a VoIP network. It is expected for the students to acquire the knowledge required to design, implement, and configure the network for Internet telephony. Students will gain the necessary theoretical and practical knowledge to implement different security models and protocols.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Signalling protocols (X.25, SS7, ISDN). Packet networks. Voice encoding. Higher level protocols: RTP, RTCP. Multiplexing over UDP protocol. VoIP network architecture. VoIP signalling and call processing. SIP, MGCP, H.323 protocols. VoIP services. Call routing. Connecting to public services. Media gateways, SIP trunking. Network management. Security of VoIP networks. Quality of service.** |
| **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** | **10** |  |  |
| **Practical teaching** | **20** | **Written examination** |  |
| **Teaching colloquia** | **30** | **Oral examination** | **30** |
| **Projects** | **10** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |