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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Electrical Engineering and Computing |
| Study Module (if applicable) | Electronics - Circuits and Systems |
| Course title | Analog Integrated Circuits Design |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | 4 |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Petković M. Predrag |
| 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)** |
| Objective is adoption and systematization of knowledge necessary for full custom analog integrated circuits design (ASIC). It is expected for students to learn how to design and dimension analog circuits at transistor level in target CMOS technology, verify their project at functional and technology level using CAD software and EDA algorithms, familiarize themselves with basis of LINUX/UNIX operating system environment, gain skills for writing project reports and presentation of project results. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Introduction to analog ASIC design flow. Explanations and definitions of basic elements in analog ASIC design flow (PDK; CAD DB formats- library, cell, view). Simulations. Transistor model. Basic building blocks of analog electronic (revision). Specificity and challenges in analog ASIC design for target CMOS technology process. Sources of noise in integrated circuits. Proper choice of analog circuit topology for a given application. Verification of topology function. Physical implementation. Characterization after implementation. Preparation for fabrication. Writing project documentation and reports. Knowledge adopted from theoretical lectures is further improved through skills obtained working in one of the industry CAD/EDA standards, Mentor Graphics ASIC Design Suite, in UNIX/LINUX environment |
| **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** | **10** | **Written examination** |  |
| **Practical teaching** | **40** | **Oral examination** | **30** |
| **Teaching colloquia** | **20** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |