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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) | Electronics - Circuits and Systems |
| Course title | Digital Integrated Circuits |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | 3 |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Jevtić S. Milun |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [x] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| To observing in detail the structure and characteristics of modern families of logic circuits different production technology. To look at the problems and compromises that occur in their design. To use a comparative analysis of different families of logic circuits to learn how to select integrated logic circuits for specific applications and how to interconnect them. To learn functionality, structure and characteristics of voltage comparators and their applications. To learn functionality and usage of the basic and integrated pulse circuits. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| The characteristics of digital circuits. Switching characteristics of MOSFET's, diodes and bipolar transistors. The basic logic circuits (LC). Time characteristics. Power dissipation. CMOS LC (HC, HCT, AC, ACT, AHC, AHCT). Bipolar LC: S, LS, AS, ALS, ECL. BiCMOS LC: ALB BCT ABT LVT ABTEI. Bilateral CMOS switch. Pass logic, CPL. CMOS LC low-power and low-voltage power supply. Voltage levels translation. Crossbar techniques (CBT CBTLV). Dynamic logic cirsuit. Dmoino logic. BUS realization (Bus-hold circuits, BTL, GTL). SR and L latch. MS SR, D, JK and T flip-flop. Schmitt trigger circuit. Interference suppression. Voltage comparators. Multivibration circuits. Relaxation oscillator circuit. Linear voltage generators. The timer circuit (Ti 555). Current controllers. |
| **LANGUAGE OF INSTRUCTION** |
| [x] 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** | **15** | **Oral examination** | **20** |
| **Teaching colloquia** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |