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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Computing and Informatics |
| Study Module (if applicable) | Information Technology |
| Course title | Computer Simulation |
| Level of study |  Bachelor X Master’s ☐ Doctoral |
| Type of course | X Obligatory☐ Elective |
| Semester  | X Autumn ☐Spring |
| Year of study  | I |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Prof. dr Vučković V. Vladan |
| Teaching mode | X Lectures ☐Group tutorials ☐ Individual tutorials☐Laboratory work ☐ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Mastering the basic skills required for basic use of procedures in computer modeling and simulation. Theoretical Knowledge: Mastering the techniques of mathematical modeling and computer simulation, 3D modeling and simulation of computer programming |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Fundamentals of computer simulation. The general approach for simulation systems. Mathematical basis for system simulation. Mathematical modeling of physical processes and sensor data. Stochastic and deterministic simulation approach. Continuous and discrete simulation. Efficient data structures and algorithms for the simulation. Access via differential algebraic equations. Local and distributed simulation. Discrete event simulation (DES). Aggregate Level Simulation Protocol (ALSP), Distributed Interactive Simulation (DIS), the High Level Architecture (simulation) (HLA). Introduction to 3D software. 3D simulations in real time. Parallel algorithms for the simulation of systems. Optimizing hardware for machine simulation. |
| **LANGUAGE OF INSTRUCTION** |
| xSerbian (complete course) ☐ English (complete course) ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)xSerbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points** | **Final exam** | **points** |
| **Activity during lectures** |  | **Written examination** |  |
| **Practical teaching** | **30** | **Oral examination** | **40** |
| **Teaching colloquia** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |