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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) | | | | Computer Engineering | | |
| Course title | | | | 3D Graphics Pipelines | | |
| 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 | | | | Dejan D. Rančić, Aleksandar Lj. Milosavljević | | |
| Teaching mode | | | | Lectures Group tutorials  Individual tutorials  Laboratory work  Project work  Seminar  Distance learning  Blended learning  Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| *Introduction to 3D graphics pipelines, their programmable stages and programming. Theoretical and practical knowledge in programming 3D graphics pipelines, and implementation skills using OpenGL API.* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| **Architecture of modern graphics processors (GPUs). Programming GPUs (shaders, kernels, GLSL, OpenCL, CUDA). 3D pipelines (programmable and fixed stages). CPU-GPU communication. Vertex processing. Transform feedback. Tessellation. Geometry processing. Clipping and rasterization. Fragment processing. Fragments fetching. Non-graphical calculations. Synchronization and interoperability. Debugging and profiling.** | | | | | | |
| **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** | **20** | | **Written examination** | | |  |
| **Practical teaching** |  | | **Oral examination** | | | **40** |
| **Teaching colloquia** | **40** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |