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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  |  |
| **GENERAL INFORMATION** |
| Study program  | **Computer Science** |
| Study Module (if applicable) | **Information Management** |
| Course title | **Knowledge Based Systems** |
| Level of study | [ ] Bachelor [x]  Master’s [ ]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [ ]  Autumn [x] Spring |
| Year of study  | Second |
| Number of ECTS allocated | 7 |
| Name of lecturer/lecturers | Miroslav Ćirić, Zorana Jančić |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [x]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Introducing basic principles, concepts and modern technologies for the representation and management of knowledge and getting practical experience in the development of knowledge based systems. At the end of the course students should understand the basic principles of representation and management of knowledge, to master the basic methods and tools for the development of knowledge based systems, and to be able to participate in the development of such systems. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Propositional and predicate logic, non-classical logic, computational intelligence (recap). Knowledge based systems (KBS): information management, objectives, components, and types of KBS, expert systems. KBS Architecture: source of knowledge, types of knowledge, skills components, structure KBS, knowledge base, reasoning based on rules of inference mechanisms, forward and backward chaining, the reasoning in the presence of uncertainty, KBS based on fuzzy logic, application KBS, Semantic Web. Knowledge representation: representational models, predicate logic, rules, frames and objects, descriptive logic, semantic networks, ontologies, formal concepts, conceptual graphs. KBS development: development methodology, mechanisms of recovery and recycling of knowledge and tools to develop KBS: C Language Integrated Production System (CLIPS), Java Expert System Shell (JESS), Protégé, Web Ontology Language (OWL). |
| **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** | **10** | **Written examination** | **25** |
| **Practical teaching** |  | **Oral examination** | **40** |
| **Teaching colloquia** | **25** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |