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| **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Mechanical Engineering |
| **GENERAL INFORMATION** |
| Study Program | **Mechanical Engineering** |
| Study Module (if applicable) | - |
| Course Title | Software Development and Programming |
| Level of Study | ☐ Bachelor | ☐ Master’s | ☒ Doctoral |
| Type of Course | ☐ Obligatory | ☒ Elective |
| Semester | ☒ Autumn | ☐ Spring |
| Year of Study | II |
| Number of ECTS Allocated | 10 |
| Name of Lecturer/Lecturers | Miroslav M. Mijajlović, Dragan S. Milčić, Dušan S. Stamenković |
| Teaching Mode | ☒ Lectures | ☐ Group tutorials | ☐ Individual tutorials |
| ☐ Laboratory work | ☒ Project work | ☒ Seminar |
| ☐ Distance learning | ☐ Blended learning | ☐ Other |
| **Purpose and Overview (max. 5 sentences)** |
| *To transfer subject contents in field of software engineering to students; To enable the students to independently and based on scientific principles develop software by using the methods and tools of software engineering.* |
| **Syllabus (brief outline and summary of topics, max. 10 sentences)** |
| 1) Introduction: Conceptual definition of software, Software architecture paradigms, Definition of software development,; 2) Principles and models of software development,; 3) Software development methods, Algorithms and problem solving, Decision table, Flow diagram, Structured programming (Nassi - Schneiderman's diagram), Plan of the data flow, Information flow and communications , Structural Analysis (SA) and structural analysis with design technique (SADT), Jackson structured programming (JSP), CASE tools; 4) Procedural programming; 5) Object-oriented programming, Object concept, Class concept, Basic elements of the object model (cocooning, inheritance, polymorphism); 6) Expert systems,; 7) Software quality; 8) Programming languages. |
| **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** | **0** | **Written Examination** | **0** |
| **Practical Teaching** | **0** | **Oral Examination** | **50** |
| **Teaching Colloquia** | **50** | **Overall Sum** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |