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| **UNIVERSITY OF NIŠ** | | | | | | | | |
| **Course Unit Descriptor** | | | **Faculty** | | Faculty of Mechanical Engineering | | | |
| **GENERAL INFORMATION** | | | | | | | | |
| Study Program | **Energy and Process Engineering** | | | | | | | |
| Study Module (if applicable) | - | | | | | | | |
| Course Title | Design of oil hydraulics and pneumatics systems | | | | | | | |
| Level of Study | ☐Bachelor | | | ☒ Master’s | | | | ☐ Doctoral |
| Type of Course | ☐ Obligatory | | | ☒ Elective | | | | |
| Semester | ☒ Autumn | | | ☐ Spring | | | | |
| Year of Study | I | | | | | | | |
| Number of ECTS Allocated | 6 | | | | | | | |
| Name of Lecturer/Lecturers | Dragiša D. Nikodijević | | | | | | | |
| Teaching Mode | ☒ Lectures | | | ☐ Group tutorials | | | | ☐ Individual tutorials |
| ☐ Laboratory work | | | ☐ Project work | | | | ☐ Seminar |
| ☐ Distance learning | | | ☐ Blended learning | | | | ☐ Other |
| **Purpose and Overview (max. 5 sentences)** | | | | | | | | |
| *The aim of the course is to introduce students to design oil hydraulics and pneumatics systems.* | | | | | | | | |
| **Syllabus (brief outline and summary of topics, max. 10 sentences)** | | | | | | | | |
| *1) Representation of hydraulic system with the functional symbols. Interpreting functions. 2) General principles of hydraulic systems design*. 3) *Connection of the pump with cylinder or motor. Connection of working elements in hydraulic system. Oil filtering.* 4) *System pressure in steady state. Limitation of pressure in the hydraulic system.* 5) *Piston velocity change. Controlled lowering of the vertical cylinder piston.* *Stopping the piston.* *Keeping the piston in the stop position.* 6*) Stopping and braking of the hydraulic motor.* 7) *Valves in the hydraulic system.* 8) *The accumulator in the hydraulic system. Fluid in the hydraulic system.*  *9) Representation of pneumatic system with the functional symbols.* *Examples and interpretation of the functions of the system. Examples of pneumatic systems. 10) Velocity change of pneumatic motors. Sequential management. 11) The emergence of possible impulses and their elimination.* | | | | | | | | |
| **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** | | **5** | **Written Examination** | | | **0\* (50)** | | |
| **Practical Teaching** | | **5** | **Oral Examination** | | | **40** | | |
| **Two midterm exams** | | **40** | **Overall Sum** | | | **90** | | |
| **\*** **Refers to students who have already gained points by completing pre-exam requirements** | | | | | | | | |