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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** |