



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	<input type="checkbox"/> Bachelor	<input checked="" type="checkbox"/> Master's	<input type="checkbox"/> Doctoral
Type of Course	<input type="checkbox"/> Obligatory	<input checked="" type="checkbox"/> Elective	
Semester	<input checked="" type="checkbox"/> Autumn	<input type="checkbox"/> Spring	
Year of Study	I		
Number of ECTS Allocated	6		
Name of Lecturer/Lecturers	Dragiša D. Nikodijević		
Teaching Mode	<input checked="" type="checkbox"/> Lectures	<input type="checkbox"/> Group tutorials	<input type="checkbox"/> Individual tutorials
	<input type="checkbox"/> Laboratory work	<input type="checkbox"/> Project work	<input type="checkbox"/> Seminar
	<input type="checkbox"/> Distance learning	<input type="checkbox"/> Blended learning	<input type="checkbox"/> 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**