



UNIVERSITY OF NIŠ

Course Unit Descriptor

Faculty

Faculty of Mechanical Engineering

GENERAL INFORMATION

Study Program	Mechanical Engineering		
Study Module (if applicable)	-		
Course Title	Elements of oil hydraulics and pneumatics		
Level of Study	<input checked="" type="checkbox"/> Bachelor	<input 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	IV		
Number of ECTS Allocated	8		
Name of Lecturer/Lecturers	Saša Milanović		
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 all students to basic elements in the field of hydraulics and pneumatics. The course is targeting both the theoretical and practical aspects of the elements, their construction, purpose and practical use.

Syllabus (brief outline and summary of topics, max. 10 sentences)

1) Principles of operation of the hydraulic system. The advantages and disadvantages of the hydraulic system. 2) Types of hydraulic systems. Hydraulic oils and fluids. The properties of hydraulic oils. 3) The elements for the transformation of energy. 4) Displacement pumps and motors. Piston pumps and motors. Vane pumps and motors. Gear pumps and motors. Hydraulic cylinders. Hydraulic accumulators. 5) Control and regulation. Control valves, the pressure valves and flow valves. 6) Additional elements: fuel, filters, piping, wiring components, devices for cooling, heating devices. 7) Sealing in hydraulics. 8) Sealing of stationary elements. Sealing of moving surfaces. 9) Pneumatic elements. Advantages and Disadvantages of pneumatic systems compared to others. 10) Air as the working fluid. Preparation of compressed air. The preparatory group for air. 11) Pressure valves. Directional flow valves. Silencers. Pneumatic engines.

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	10	Written Examination	0* (45)
Practical Teaching	10	Oral Examination	35
Three midterm exams	45	Overall Sum	100
* Refers to students who have already gained points by completing pre-exam requirements			