

Study Programme: Energy and Process Engineering			
Course Unit Title: Hydraulics and pneumatics			
Course Unit Code: M34I11			
Name of Lecturer(s): Bikić Siniša, Tašin Slobodan			
Type and Level of Studies: bachelor			
Course Status (compulsory/elective): compulsory			
Semester (winter/ summer): winter			
Language of instruction: english			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: none			
<p>Course Aims:</p> <p>The aim of the subject is acquiring the knowledge, competencies and academic skills of students about hydro-pneumatics components which are used in hydro-pneumatics system for power transfer and controlling of power transfer. The course envisages development of creative abilities and mastering of specific practical skills in the domain of hydraulics and pneumatics. We also plan students to achieve the ability to use information and communication technologies in the field of hydraulics and pneumatics.</p>			
<p>Learning Outcomes:</p> <p>Ability for solving of specific problems in the field of hydraulics and pneumatics. Ability to critically and self-critical thinking and approach in solving of specific problems in the field of hydraulics and pneumatics. Students will be trained to use modern technical solutions of hydraulics and pneumatics. Development of skills and ability in the field of hydraulics and pneumatics. Students will also be trained to use information and communication technologies in the field of hydraulics and pneumatics.</p>			
<p>Syllabus.</p> <p>Hydraulic and pneumatic components, definitions, place and role in the hydraulic and pneumatic systems for the transfer of energy and motion and in the hydraulic and pneumatic control systems. Volume compressors, working principles, advantages and disadvantages, classification, working parameters, characteristics. Volume pumps, working description, advantages and disadvantages, classification, working parameters, characteristics. Volume engines, classification, working principles, advantages and disadvantages, technical parameters, energy characteristics. Control valves, classifications, working principles, graphic marking, hydraulic and control characteristics. Control of oil temperature in hydraulics systems.</p>			
<p>Required Reading:</p> <p>Relevant literature in English, tbd</p>			
Weekly Contact Hours: 3	Lectures: 3	Practical work: 0	
<p>Teaching Methods:</p> <p>Teaching is done with modern didactic means and methods, interactively in the form of lectures, laboratory and computational exercises.</p>			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Attendance			
Computer exercises			
Tests (4x)			

