

SYLLABUS

Basic data of the subject	
Academic Unit:	Industrial Engineering with Informatics
Title of the subject:	Hydraulic and pneumatic systems
Level:	Bachelor
Course Status:	Elective
Year of studies:	II
Number of hours per week:	4
Value of Credits - ECTS:	5
Time / location:	
Course lecturer:	Mr.sc. Nebi Berisha
Contact details:	nebi.berisha@ushaf.net
Course description	
Course description	<p>This course will introduce students to hydraulic and pneumatic systems, their history, the physical traits of fluids, hydrostatics, cinematics, fluid dynamics, elements of hydraulic systems. Pumps, distribution equipment, hydraulic motors, basic principles of hydraulic systems design and their maintenance, examples of hydraulic systems use, air compression equipment, air preparation units, elements of pneumatic systems, high pressure pneumatic systems, basic principles of pneumatic systems designs and their maintenance, and examples of pneumatic systems use.</p>
Objectives of the course:	Introducing students to physical traits of fluids, hydraulic systems, pneumatic systems
Expected learning outcomes:	<p>Upon completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1.Understand hydraulic systems 2.Understand pneumatic systems 3.Design a piece of equipment which would operate on hydraulic or pneumatic systems <p>This course will also help students develop other skills, including:</p> <ul style="list-style-type: none"> • Communication and presentation skills

	<ul style="list-style-type: none"> Teamwork skills 		
Contribution to the student load (which must correspond with learning outcomes)			
Activity	Hours	Days/weeks	Total
Lectures	2	15	30
Theoretical exercises / laboratory	2	15	30
Internship	1	10	10
Contacts with teacher / consultations	1	1	1
Field exercises			
Midterm, seminars and projects.	2	1	2
Homework			
Self-learning time student (at the library or at home)	3	15	45
Final preparation for the exam	2	15	30
Time spent on evaluation (tests, quiz and final exam)	2		2
Projects and presentations			
Total			150
Teaching methodology:	Lectures, exercises, seminar papers, discussions, study visits		
Assessment methods:	Final exam comprises 100% of the final grade. The exam includes multiple choice questions, open questions, accessibility of engineering experience		
Literature			
Basic literature:	<i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike</i>		
Additional literature:	<i>Nikolic G:Pnumatsko upravljanje</i>		
Designed learning plan:			
Week	Lectures to be held		
Week:	Hydraulic and pneumatic systems, history, advantages and disadvantages, application, physical traits of fluids <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli I</i>		
Week one:	Hydrostatics, transmission fluid <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli I</i> <i>Nikolic G:Pnumatsko upravljanje kapituli I</i>		

Week two:	Fluid dynamics, Cinematics <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli I</i> <i>Nikolic G:Pnumatsko upravljanje kapituli I</i>
Week three:	Pumps, distribution machines, hydraulic motors <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli I</i>
Week four:	Elements of hydraulic systems Valves <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli II</i>
Week five:	Filters, reservoirs, accumulators and tubes <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli II</i>
Week six:	Basic principles of hydraulic systems design and their maintenance <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli II</i>
Week seven:	Examples of the use of hydraulic systems <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli II</i> <i>Nikolic G:Pnumatsko upravljanje kapituli III</i>
Week eight:	Pneumatics, physical features of gasses <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli II</i> <i>Nikolic G:Pnumatsko upravljanje kapituli III</i>
Week nine:	Air compression equipment, air preparation units <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli II</i>
Week ten:	Elements of pneumatic systems, high pressure pneumatic systems <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli III</i>
Week eleven:	Basic principles of pneumatic systems design and their maintenance <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli III</i>

Week twelve:	Examples of the use of pneumatic systems <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli III</i> <i>Nikolic G:Pnumatsko upravljanje kapituli IV</i>
Week thirteen:	Hydropneumatics <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli III</i> <i>Nikolic G:Pnumatsko upravljanje kapituli IV</i>
Week fourteen:	Selection of examples from the industry <i>Pajazit A.Likaj R:Sistemet hidraulike dhe pneumatike kapituli III</i> <i>Nikolic G:Pnumatsko upravljanje kapituli IV</i>

Academic policies and rules of conduct
<i>Regular attendance, turning off mobile phones, coming to class on time, etc.</i>