SYLLABUS

Basic data of the subject	
University	**University of Applied Sciences in Ferizaj**
Academic unit	**Faculty of Engineering and Informatics**
Program	**Industrial Engineering with Informatics**
Title of the subject	**Hydraulics and pneumatics systems**
Level	**Bachelor**
Course Status	**Elective**
Year of studies:	**llI, Semester VI**
Number of hours per week	**3**
Value of Credits - ECTS	**4**
Time / location	
Course lecturer	
Contact details	
Course Description	*This course will introduce students to hydraulic and pneumatic systems, their history and basic principles of hydraulic system design and maintenance, examples of the use of hydraulic systems, air compression equipment, air preparation units, elements of systems pneumatic, etc.*
Objectives of the course	*The purpose of this subject is to acquaint students with the physical properties of fluids, hydraulic systems, pneumatic systems and their application.*
Expected learning outcomes	*After successful completion of this subject, students should be able to:* • *understand the work of hydraulic and pneumatic systems.* • *know the operation of electrohydraulic, electropneumatic systems.* • *understand the principles of hydraulic and pneumatic pumps and delivery systems.*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**in Total**
Teaching (Lectures and exercises)	3	15	45
Practical work			
Contacts with the teacher/consultations	3	3	3
Field exercises			
Colloquiums, seminars			
Home-work			
Student's independent study time (in the library or at home)	3	14	42

Final preparation for the exam	2	5	10
Time spent in assessment (tests, quizzes, final exam)	2		2
Projects, presentations, etc			
Total			**102 hours**

Teaching methodology	*Lecture, discussion, seminar, design tasks, laboratory exercises. study visit to the industries that offer these systems*
Prerequisites	*There are no prerequisites to start learning Hydraulic and Pneumatic Systems. However, it is recommended that students have basic knowledge of Mathematics, Physics and the Windows operating system.*
Assessment methods	*Within the semester period, seminar papers are organized, two written tests with 30 points each, or the student has the right to undergo only the final exam which has 60 points (written/oral test), the test contains open questions, some of these data with pictures. The student passes the exam if he collects 51 points from all evaluation criteria,* ▪ *commitment and follow-up: 20%* ▪ *seminar paper (colloquium)/* ▪ *case study/research project: 20%* ▪ *tests or final exam: 60%* *Total: 100%* *Rating:* *91-100 points – graded 10 (ten);* *81-90 points - graded 9 (nine)* *71-80 points – grade 8 (eight);* *61-70 points – grade 7 (seven);* *51-60 points – grade 6 (six);* *0 - 50 points – The student repeats the exam.*
The ratio of theory and practice	*60% theory with exercises and 40% laboratory work. Renewable Energy Laboratory (Hall 204 – UASF).*
Literature	
Basic Literature	*1. Pajazit A. Likaj R: Sistemet hidraulike dhe pneumatike*
Additional Literature	*1. Nikolic G:Pnumatsko upravljanje*

Designed learning plan	
Week	**Lectures and exercises to be held**
Week one	*Hydraulic and pneumatic systems, history, advantages, disadvantages, application, physical properties of fluids*
Week two	*Working fluid; the Hydrostatics*
Week three	*Kinematics; Fluid dynamics* *Distribution of the first homework assignment*
Week four	*Pumps, distribution equipment, the hydraulic motors*

Week five	*Elements of hydraulic systems, valves*
Week six	*Filters, reservoirs, accumulators and pipes*
Week seven	*Basic principles of designing hydraulic systems and their maintenance. Examples of the use of hydraulic systems*
Week eight	*Study visit. The factory for the production of the plastic pipes "FERPLAST", Ferizaj or the factory for the processing of plastic packaging "KIVO" - Kaçanik.*
Week nine	*Pneumatics, physical properties of gases*
Week ten	*the Air compression equipment, the set of air preparation*
Week eleven	*the Elements of pneumatic systems, the pneumatics of high pressure*
Week twelve	*the Basic principles of designing pneumatic systems and the maintenance of their*
Week thirteen	*Examples of the use of pneumatic systems* *Distribution of the second homework assignment*
Week fourteen	*Hydropneumatics*
Week fifteen	*Solving examples from industry*
Academic policies and rules of conduct	
Regular participation in lectures and exercises is necessary, as well as active participation in the discussion and solving of tasks. Cell phones should be turned off or put on silent mode.	