SYLLABUS

Basic course data	
University	**University of Applied Sciences in Ferizaj**
Academic unit	**Faculty of Engineering and Informatics**
Program	**Industrial Engineering with Informatics**
Course title:	**Welding**
level:	**Bachelor**
Course status:	**Core**
Year of studies:	**III, Semester V**
Number of hours per week:	**3**
Credits value - ECTS:	**5**
Time / location:	
Course teacher:	
Contact details:	
Course description:	*Welding is one of the most popular metal joining in the industry. This course will provide all necessary information about welding and the techniques required in welding of different steel structures.*
Objectives of the course:	*The objective of this module is to provide students with the understanding about welding processes, types of welding and the advantages of welding in the construction of structures compared to other methods*
Expected learning outcomes:	*After successful completion of this course, the students will be able to:* • *know the welding methods and use them most appropriately in the right places.* • *choose the appropriate parameters for specific welding cases.* • *recognize contemporary welds and if possible apply them* • *understand apply welded structures testing methods.*
Prerequisites	*N/A*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**In total**
Lectures	3	15	45
Practical work	2	4	8
Contacts with teacher / consultations	1	5	5
Field exercises	-	-	-
Midterm, seminars and projects.	2	5	10
Homework		4	4
Self-learning time student (at the library or at home)	2	15	30
Final preparation for the exam	3	6	18
Time spent on evaluation (tests, quiz and final exam)	1	2	2
Projects and presentations.	1	2	2

Total			**124**
Teaching methodology:	*Lectures combined with practical and laboratory work*		
Assessment methods:	*Intermediate test: 20%* *Course work: 30%* *Final exam: 50%* ***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.*		
Literature			
Basic Literature:	1. *Fatmir Çerkini, **SALDIMI** (Script), University of Applied Sciences in Ferizaj*		
Additional Literature:	1. *Ing. T. Haxhiymeri Teknologji metalesh-saldimi, USHT, Tiranë 1972* 2. *C.Bertucelli,V.Bettini,A.Carrer, M.S.Florio, I.Marino, M.Porsegani, E.Quinzio, C.Reverdy – Tecnologia Meccanica, SALDATURA, Milano* 3. *Dr. B. Bytyqi Saldimi, Universiteti i Kosovës, Prishtinë*		

Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one:	*Introduction. Comparison of welding with other processes. Classification of welding modes*
Week two:	*Welding metallurgy. Thermal Impact Area (TNA). Thermal impacts during welding. Tempering during welding. Preventing deformities and tensions*
Week three:	*Welding of steel. Welding of grey cast iron. Non-ferrous metal welding. Welding of copper and its alloys .. Welding of aluminium and its alloys. Welding of zing, nickel and lead*
Week four:	*Autogenously (gas) welding. Oxygeno-acetylene welding. Gas welding equipment Oxygeno-acetylene flame. Kinds of flames. Plugs.*
Week five:	*Gas cutting. Gas cutting machine. Special sand cutting machine. Errors during cutting. Cutting by hand. Machine cutting.*
Week six:	*Welding with electrical resistance. Point welding. Distribution of temperatures at point welding. Seam welding. Shore welding. Ball welding.*
Week seven:	*Welding with electrical contacts and induction. Frequency contact welding. Induction welding. Electrical resistance welding machines.*
Week eight:	*Electric arc welding. The length of the bow. Filling the seam. Characteristics of arc and electric source. Electric arc welding by hand. Holding the electrode. Flashing of the bow. Holding the bow. Arch break. Electrode trajectories.*

Week nine:	*Hand welding equipment. Electricity sources. Cables. Electrode Holder. Sewer cleaning tools. Protective tools during welding. Work desk. Additional material. Worn electrodes. Electrode sheath. Classification of electrodes Intermediate test*
Week ten:	*Welding under flux (dust) protection. Welding under gases protection. Welding MAG, MIG, TIG.*
Week eleven:	*Plasma welding. Gases used for plasma formation. Advantages and disadvantages of plasma use. Welding under the electrocardiogram.*
Week twelve:	*Other welds. Underwater welding and cutting. Tandem welding. Friction welding. Mixed friction welding (FSW). Electronic welding. Laser welding. Ultrasound welding.*
Week thirteen:	*Soldering. Soft soldering. Strong soldering. The most important methods of soldering. Soldering materials.*
Week fourteen:	*Welding errors. Cracks. Checking and examining welded joints. Testing of welded joints with destruction. Testing welded joints without breaking*
Week fifteen:	*Submission of seminar papers*

Academic policies and rules of conduct
Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.