

Basic data of the subject:			
Academic unit:	Faculty of Management		
Subject title:	Knowledge of engineering materials		
Study level:	Bachelor		
Subject status:	Compulsory		
Year of study:	I		
Number of hours per week:	4		
Value of credits - ECTS:	6		
Lecturer of the subject:	Mr.Sc.Fatmir Çerkini		
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Subject description:			
	Introduction. Metals. Tests of metal and metal alloys. Internal construction of materials. Structure of metal and metal alloys. Iron-Carbon Balance Equilibrium Diagrams (Fe-C). Iron Metallurgy. Steel and its production. Symbolization of the steels according to DIN standard. Thermal processing of metals. Chemical-thermal treatment of the steels and alloys. Colored metals and their alloys. Nonmetallic materials. Wood. Tires. Asbestos. Glass. Plastics. Adhesives. Colors, lacquers, stains.		
Purpose of the subject:			
	Knowledge of students with materials used in engineering and other constructions. Knowing the properties of materials, their crystalline construction, their profit, and the proper use of materials		
Learning outcomes:			
	After the completion of this course the student will be able to: <ul style="list-style-type: none"> • Know the properties of mechanical materials, e.g. metals properties • Describe the characteristics of the materials and distinguish them • Make the selection of appropriate materials, depending on the place of use for any construction • Make assessments of properties and material features, symbolization according to standards. 		
Contribution to the student's charge (which should correspond with the results of the student's learning results)			
Activity	Hour	Day/week	In total
Lectures	2	15	30
Theoretical/laboratory exercises	2	15	30
Practical Work	-	-	-

Office Hours	0.5	15	8
Filed Exercises	-	-	-
Seminars	2	2	4
Homework	1	15	15
Self-learning time (in the library or at home)	2	15	30
Preparation for the final exam	2	15	30
The time spent in the assessment (tests, final exam), quiz	1	2	2
Projects, presentations, etc.	0.5	2	1
Total			150

Methodology of teaching:	lecture, seminar, discussion, group work
The evaluation methods:	First Assessment 30% Second Assessment 35% Homework 20% Participation and engagement per hour 15% Final exam: 65% Total: 100%

Literature	
Basic literature:	<ul style="list-style-type: none"> ➤ <i>Fatmir Çerkini TEKNIKA E MATERIALEVE" (script), Fakulteti i Shkencave të Aplikuarra Ferizaj, 2005</i> ➤ <i>Prof.dr.N.Boshnjaku,,NJOHURIMATERIALE SH TË MAKINERISË", Universiteti i Kosovës, Prishtinë 1985</i>
Additional literature:	<ul style="list-style-type: none"> ➤ <i>Gian Mario Paolucci,, LEKSIONE TË METALURGJISË"1,2, Padova, Itali (përkthim në shqip 2006)</i> ➤ <i>B.Baholli, I.Hoxha, V.Nika, G.Demiraj, E.Lamani ,,STRUKTURA DHE PËRPUNIMI TERMIK I METALEVE", Tiranë 1986</i> ➤ <i>Doc.Tahir Haxhiymeri, Ali Katragjini, Qiriako Leka, Shyqyri Meta,, TEKNOLOGJIA E MATERIALEVE", Tiranë 1992</i>

The lesson plan:	
Week	Lectures to be held
<i>First week:</i>	Introduction. Crystalline materials. Metals, metal properties. Metal separation
<i>Second week:</i>	Tests of metal and alloys. Mechanical tests with static force action.
<i>Third week:</i>	Strength tests with static force action. According to Brinell, according to Vickers, according to Rockwell. Strength tests with dynamic action of force.
<i>Fourth week:</i>	Tests of metals and alloys at low and high temperatures.

	Technological proofs. Proficiency testing in tempering.
<i>Fifth week:</i>	Tests of steel ropes. Tests to detect defects in the material. Protection from the rays of the x-ray.
<i>Sixth week:</i>	Ultrasonic, magneto, fluorescent, metallographic tests First Assessment
<i>Seventh week:</i>	Crystallography. Structural networks. Formation of crystals. Deformation mechanisms. Defects of crystalline metal structure and errors in crystalline nets.
<i>Eighth week:</i>	Metal alloys. Phase diagram of double bonds.
<i>Ninth week:</i>	Ferro-carbon balance equilibrium diagrams. The most important structures of Fe - C bonds.
<i>Tenth week:</i>	Iron Metallurgy. The process of obtaining iron at high ovens. Steel and its production. Benefit of steel in converters. In the Symens-Martin furnace and electric oven. Cast iron. Ways of cast iron and steel spill.
<i>Eleventh week:</i>	Standardized description of metal materials with examples of other relevant standards. Classification of the steels. Symbolization of the steels according to the DIN EN standard, etc. Steel symbolization according to Croatian standard (HRN)
<i>Twelfth week:</i>	Thermal processing of metals. TTT Diagrams. Baking, tempering, releasing. Surface annealing, Chemical-thermal processing.
<i>Thirteenth week:</i>	Colored metals and their alloys.
<i>Fourteenth week:</i>	Nonmetallic materials. Wood. Rubber. Asbestos. Glass. plastic masses. Adhesives, colors, lacquers
<i>Fifteenth week:</i>	Second Assessment
Academic policies and rules of conduct:	
<i>Regular attendance, tranquility and active engagement in dialogue during lectures and exercises are obligatory. As a matter of courtesy, mobile phones should be switched off during classes and exams.</i>	