

	UNIVERSITY OF EAST SARAJEVO Faculty of Mechanical Engineering					
	Study program: Mechanical Engineering					
	1 ST LEVEL OF STUDIES			4 th YEAR		
Course title		Structural testing				
Department		Department of Mechanical constructions and Engineering Design				
Code		Course status		Semester		ECTS
MAΦ-1-1-MC-06-1-095-8-5-3-0-5-1.5		Mandatory		I		6
Professor		PhD Miroslav Milutinovic, assistant professor				
Teaching assistant		M. Sc. Aleksija Đurić - teaching assistant				
Number of hours (per week)			Individual student workload (in hours in semester)			Coefficient of student workload S_o
L	E	LE	L	E	LE	S_o
3	0.5	1.5	3*15*S _o	0.5*15*S _o	1.5*15*S _o	1.4
Total total teaching hours in semester 3*15 + 0.5*15 + 1.5*15 = 75 hours			Total student's workload (in hours in semester) 3*15*S _o + 0.5*15*S _o + 1.5*15*S _o = 105 hours			
Total course workload: 75 + 105 = 180 hours in semester						
Student learning objectives	By taking the exam in this course, the student gained the knowledge to independently identify the state of the machine system, perform measurements and tests on various constructions, as well as to make an appropriate report on the testing of the machine part.					
Conditionality	No conditioning					
Teaching methods	Lectures, auditory and laboratory exercises					
Content of the course by weeks	<ol style="list-style-type: none"> 1. Introductory considerations, 2. Types of tests. The place, role and significance of experimental tests in comparison with analytical and numerical methods, 3. Methods of measuring physical quantities in solid structures (strain, stress, loads, ...) 4. Measurement accuracy and error. Display and processing of the measurement results 5. Encoders and their application, 6. Testing of operating characteristics and service life of individual machine elements. 7. Load simulations. Testing of gearboxes, power transmissions, shafts, gears, bearings, couplings. Permitted stress and dynamic behavior as a function of system working conditions. Stress spectra. 8. Open and closed power flow systems. 9. Accelerated laboratory tests 10. Testing of specimen, real components, complex systems on a test table. 11. Transformations of experimental results to real conditions and real parameters of constructions 12. Tests in exploitation. 13. Destructive testing: types of destruction, probability of destruction, reliability. 14. Non-destructive testing: types and objectives of testing, noise, vibration, load testing. 15. Testing of noise, vibration and other ecological characteristics of machine systems 					
Required literature						
Authors	Name of the publication, publisher			Year	Pages	
M.Milutinovic	Authorized presentations					
Jeff Wu C.F., Homada M.	Experiments: Planing Analysis and Parameters Design Optimisation, Wiley			2000		
Additional literature						
Authors	Name of the publication, publisher			Year	Pages	
					-	
Obligations, forms of knowledge check and assessment	Type of student evaluation			Points	Percentage	
	attendance at lectures / exercises			5	5%	
	Colloquium I and II + Written exam			30	30%	
	Project task			20	20%	
	final exam (oral / written)			45	45%	
Total			100	100 %		
Web page						
Date of certification						

