

	UNIVERSITY OF EAST SARAJEVO Faculty of Mechanical Engineering					
	Study program: Mechanical Engineering					
	1 ST LEVEL OF STUDIES			2 ST YEAR		
Course title	MACHINE ELEMENTS 1					
Department	Department of Mechanical constructions and Engineering Design					
Code		Course status		Semester		ECTS
MAΦ-1-1- MC-06-1-014-3-6-3-2-0		Mandatory		III		6
Professor	PhD Biljana Marković, full 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 S₀
L	E	LE	L	E	LE	S₀
3	1	1	3*15*S ₀	1*15*S ₀	1*15*S ₀	1.4
Total total teaching hours in semester 3*15 + 1*15 + 1*15 = 75 hours				Total student's workload (in hours in semester) 3*15*S ₀ + 1*15*S ₀ + 1*15*S ₀ = 105 hours		
Total course workload: 75 + 105 = 180 hours in semester						
Student learning objectives	<ol style="list-style-type: none"> 1. Introduction to general principles in product development and machining of machine parts; Understanding the function of machine parts and their use; 2. Introduction to the basic elements for achieving separable and inseparable connections in mechanical engineering; 3. Introduction to the basic elements for making threaded connections; 4. Getting to know the basic elements for achieving elastic connections, springs; 					
Conditionality	Engineering graphics					
Teaching methods	Lectures, exercises, graphic exercises, computer exercises, colloquiums					
Content of the course by weeks	<ol style="list-style-type: none"> 1. Machine systems, machine elements, definition, division; Function; 2. Product developing process; Calculation of machine elements; Application of computers in mechanical construction; 3. Stress, strain, deformation, basic types: operating stresses; Stress concentration; Tangential (surface) stresses; 4. Mechanical characteristics of machine materials; Dynamic endurance; Permissible stress; Critical stress; Stress matching hypotheses; 5. Veler curve, Smith diagram, Safty factor; Dynamic safty factor; 6. Lightweight constructions; Definition of design for light constructions; Materials and selection of materials for light constructions; 7. Connections and joints of machine elements; Inseparable ties; 8. Pressed joints, riveted and welded joints, types and calculation; 9. Threaded joints; Thread tolerances, materials; Types of threads; Loads and stresses of movable threaded joints; Calculation; 10. Screw connections, stiffness, forces, and deformations, deformation diagram, dynamic bearing capacity; Calculation, steps; Group screw connections; 11. Elements for rotary motion; Function, role, type; 12. Shafts and axle; Basic shapes, loads, cuts, stresses, and sizing; 13. Shaft and rotating parts joints, hubs, conical clamping joints, grooved joints, toothed joints; polygonal joints; Detachable ties, wedges and wedge connections, inclined wedges, inclined wedges; 14. Links with pins and pins, articulated connections; 15. Springs, types, function and use; Spring systems; Calculation. 					
Required literature						
Authors		Name of the publication, publisher		Year	Pages	
V. Miltenović, B. Marković, M Tica		"Konstrukcioni elementi u mašinogradnji 1", Faculty of Mechanical Engineering East Sarajevo		2018.	-	
,B. Marković		Script in English				
Additional literature						
Authors		Name of the publication, publisher		Year	Pages	
					-	
Obligations, forms of knowledge check	Type of student evaluation			Points	Percentage	
	attendance at lectures / exercises			5+5	10%	

and assessment	Colloquium I and II + Written exam	20+20	40%
	Graphic works	20	20%
	final exam (oral / written)	30	30%
	Total	100	100 %
Web page	http://www.maf.ues.rs.ba/PDF_za_sajt/ZAJEDNICKI_I_II_2017/Masinski%20elementi%201.pdf (in Serbian language)		
Date of certification			