	UNEVERSITY OF EAST SARAJEVO Faculty of Mechanical Engineering	
	Study program: Mechanical Engineering	
	1ST LEVEL OF STUDIES | 2ST YEAR	

Course title	**MACHINE ELEMENTS 1**
Department	Department of Mechanical constructions and Engineering Design

Code	**Course status**	**Semester**	**ECTS**
МАФ-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 S_o**
L	**E**	**LE**	**L**	**E**	**LE**	**S_o**
3	1	1	$3*15*S_o$	$1*15*S_o$	$1*15*S_o$	1.4

Total total teaching hours in semester 3*15 + 1*15 + 1*15 = 75 hours	Total student's workload (in hours in semester) $3*15*S_o + 1*15*S_o + 1*15*S_o$ = 105 hours
Total course workload: 75 + 105 = 180 hours in semester	

Student learning objectives	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	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			