	UNIVERSITY OF EAST SARAJEVO		
	Faculty of Technology Zvornik		
	Study programme: *Chemical Engineering and Technology*		
	Cycle I		Year I

Course title	Fundamentals of Mechanical Engineering
Department	

Course code	Course status	Semester	ECTS
04-1-011-2	Compulsory	II	4

Teacher	Bojan Međo, PhD, Assoc. Prof.
Teaching assistant	Bojan Međo, PhD, Assoc. Prof.

Number of hours/ teaching workload (per week)			Individual student workload (in hours per semester)			Student workload coefficient S_o
Lectures	Auditory exercises	Laboratory exercises	Lectures	Auditory exercises	Laboratory exercises	S_o
2	1	0	50	25	0	1.67

Total teaching workload (in hours, per semester) 2*15 + 1*15 + 0*15 = 45 hours	Total student workload (in hours, per semester) (2*15*1.67 + 1*15*1.67 + 0*15*1.67) = 75 hours
Total course workload 45 + 75 = 120 hours per semester	

Learning outcomes	1 Technical education and preparation for application of gained knowledge in practice. 2. Acquiring knowledge about calculation of parts, assemblies and entire devices, including the application of certain rules which enable their proper functioning. 3. Successful attending of the courses during the following semesters at the Faculty of Technology. 4. Solving of specific problems in the field of process equipment which consist of the elements covered by this course. 5. Foundation for problem solving in the field of design and construction in process and chemical industry, as well as forming of the project documentation.
Prerequisites	Engineering Drawing
Teaching methods	Lectures, auditory exercises.
Syllabus outline per week	1. Materials in chemical and process industry. Stress and Strain. Types of loading. Allowed stress. Safety factor. 2. Bending loading. Types and calculation of load bearing elements. Static diagrams. 3. Stress and strain. Normal stresses. Loading and calculation of elements exposed to tension, pressure and contact pressure. 4. Shear stress. Loading and calculation of elements exposed to shearing and torsion. 5. Welded joints, types, construction and application. Loading and calculation of welded connections. 6. Threaded connections. Application, fabrication, calculation and examples of specific threaded joints. 7. Pressure vessels, application, fabrication, examples, construction. Calculation of main parameters. Pipeline installations and devices in process and chemical industry. 8. Pipelines, pipes, pumps, valves – construction solutions, applications, materials, losses and basic calculations. Application of Bernouli equation on pipelines. Pipe fittings. 9. Mechanical power transmission machines, role, types, application, materials, fabrication. Main parameters and relations for calculation. 10. Calculation of main quantities and parameters for power transmission. Friction transmission. 11. Gear transmission: spur and hellical gears, bevel gears. Construction, fabrication, application and calculation. Belt and chain transmission, construction, examples and calculation 12. Calculation and examples of combined transmission. Construction and maintenance of transmissions. 13. Shafts (light and heavy), shaft keys and couplings, examples and calculation. Axles and sleeves. 14. Sliding and rolling contact bearings, application, selection, maintenance and calculation.

Obligatory reading			
Author	**Title, publisher**	**Year**	**Pages**
B. Pejović	Zbirka zadataka iz osnova mašinstva, Tehnološki fakultet, Zvornik	2011	1-225

Additional reading			
Author	**Title, publisher**	**Year**	**Pages**
C. Žepinić, I. Lolić	Mašinski elementi, zadaci i tabele,	2000	1-214
S. Sedmak	Elementi mašina i aparata, Tehnološko-metalurški fakultet, Beograd	1997	1-368

	Type of student evaluation	**Grade points**	**Percentage**
Obligations, assessment methods and grading system	Pre-exam obligations		
	Attendance	6	6%
	Obligatory (program)assignments	27	27 %
	Mid-term test/Colloquium I	12	12 %
	Mid-term test/Colloquium II	13	13 %
	Mid-term test/Colloquium	12	12 %
	Final examination		
	Final examination (oral/written)	30	30 %
	Total	100	100 %
Webpage	www.tfzv.ues.rs.ba		
Date			