„DZEMAL BIJEDIC“ UNIVERSITY OF MOSTAR FACULTY OF CIVIL ENGINEERING		
Unit:	**Mechanics II**	**Subject code: 0000**
Level:	Undergraduate	
Professor:	Associate Professor dr.sc. Mili Selimotić, CE	
Contact details:	E-mail: mili.selimotic@unmo.ba	Tel: +387 36 514-866
Contact hours:	Lectures per week: 2hrs	Practicals/tutorials per week: 2hrs
ECTS:	5 ECTS	
Unit status:	Core	
Prerequisites:	-	
Synopsis:	Kinematics of material points (particles): Reference and coordinate frames; Position, velocity and acceleration of a material point. Kinematics of plane motion of a rigid body: Velocity, angular velocity, acceleration and angular acceleration vectors and their relationships; Translation; Rolling; Instantaneous center of zero velocity. Kinetics of particles and of a mass centers of bodies: Newton’s and Euler’s laws; Work and kinetic energy; Momentum, Impulse and Impact; Angular momentum. Kinetics of a rigid body in plane motion / Development and solution of differential equations governing the motion: Rigid bodies in translation; Angular momentum; Moments and products of inertia / The parallel axis theorems; Equations of the motion and various forms of the moment equation. Introduction to oscillations: Basic concepts, definition of degree of freedom, model of structure for dynamic analysis; Free, damped and undamped vibrations of elastic systems with one degree of freedom and corresponding differential equations of motion; Response spectrum.	
Aims:	Mastering the basic concepts and methods in kinematics and dynamics, broaden student's knowledge attained in the Statics class and set the foundation for understanding concepts that are subjects of graduate level courses.	
Outcomes	On successful completion of the course, students should comprehend basic concepts and methods in kinematics and dynamics and be capable of understanding and developing dynamic equilibrium equations while solving simple kinematics and dynamics problems related to plane structures and elements of structures.	
Teaching methods:	Lectures, practicals/tutorials/self-directed learning exercises	
Assessment:	Two tests (1 hour each) 20% and 30%; Final examination (2 hours): 50%;	
Prescribed literature:	1. David J. McGill & Wilton W. King, Engineering mechanics, an introduction to Dynamics, PWS Publishing Company 1995. 2. Chopra A.K., Dynamic of structures, theory and applications to earthquake engineering, Pearson Prentice Hall 2007 3. Rusov L.,Kinematika,Beograd : Naučna knjiga 1990. 4. Rusov L.,Dinamika,Beograd : Naučna knjiga 1994.	