

<b>Study program: Road Traffic</b>			
<b>Subject name: Mechanics 1</b>			
<b>Teacher: mr Miodrag B. Stanković</b>			
<b>Subject status:</b> Compulsory			
<b>Number of ECTS:</b> 7			
<b>Conditions:</b> None			
<b>Subject objective</b> Introduction to the basic concepts of plane statics, friction, graphostatics and the center of gravity of lines and surfaces.			
<b>Subject outcome</b> Solving basic assignments from plane statics, friction, graphostatics and the center of gravity of lines and surfaces.			
<b>Subject content</b>			
<i>Theory classes</i>			
Basic concepts and axioms of statics. Types and division of forces. System force. Static axioms. System of opposing forces in the plane coordinate system. Addition of forces in the plane system. Moments and couplings. Moment of force for a point. Coupling force. Coupling force properties. Composing force and coupling. Basic concepts of friction. Sliding friction. Rolling friction. Graphostatics. Flat girders. Types of loads. Graphical and analytical way of determining the resistance of supports. Basic static quantities in the cross section of the girder. Diagrams of basic static quantities in cross sections of solid girders. Simple beam loaded: with forces, couplings, direct load. Beams with overhangs. Combined load beam. Console. Console loaded with combined load. Lattice girders. Determination of force in lattice rods by Cremona force plan. Determination of the center of gravity of homogeneous straight lines. Determination of the center of gravity of homogeneous flat surfaces. Guldin's theorems. Basic examples of solving homogeneous complex lines and surfaces.			
<i>Practice classes</i>			
Addition of forces in the plane system. Solving systems of opposing forces. Solving practical problems of complex systems of opposing forces. Solving practical tasks from friction. Graphical and analytical method for determining the resistance of solid support supports. Construction of static diagrams in simple beams loaded: forces, couplings and direct load. Construction of static diagrams for overhang beams, combined load beams and brackets. Construction of static diagrams for consoles loaded with combined load. Determination of forces in rods in lattice girders by the Cremona force plan method. Determination of the center of gravity of homogeneous straight lines. Determination of the center of gravity of homogeneous flat surfaces. Determining the volume of a body created by rotating lines and surfaces around an axis using Guldin's theorems.			
<b>Literature:</b>			
1. С. Стефановић, „Механика 1“, Висока школа примењених струковних студија, Врање, 2011.			
2. С. Стефановић, „Механика 1 – Статика“, ТЕХДИС, Београд, 2008.			
3. С. Стаменковић, С. Ристић, „Збирка решених задатака из Механике 1 са изводима из теорије“, Виша техничка школа, Ниш, 1998.			
4. Н. Грујић, „Механика 1“, Висока техничка школа струковних студија, Пожаревац, 2009.			
5. С. Стаменковић, „Статика“, Виша техничка школа, Ниш, 2004.			
<b>Number of active classes</b>	<b>Theory classes: 30</b>	<b>Practice classes: 30</b>	
<b>Teaching methods</b> Oral presentation method, conversation method, graphic work method and demonstration method.			
<b>Knowledge assessment (maximum number of points 100)</b>			
<b>Pre-exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
activity during the lectures	5	written exam	30
practice classes	5	oral exam	-
colloquium/s	50		
seminar/s	10		