

<b>Study program: Industrial Engineering</b>			
<b>Course title: Mechanics 2</b>			
<b>Professor/assistant: : Boban Cvetanovic / Biljana Milutinovic</b>			
<b>Type of course:</b> compulsory			
<b>ECTS credits:</b> 8			
<b>Pre-requisites:</b> -			
<b>Aims of the course:</b> Prepare students to: <ul style="list-style-type: none"> <li>fully study and clarify the conditions of geometrical motion of both the material points and the rigid body as well as the rigid body system</li> <li>understand the causes of motion in the case of a material point in order to learn the theoretical apparatus that will serve as a basis for studying the dynamics of a rigid body and a deformable body</li> </ul>			
<b>Learning outcomes:</b> After taking the course, students will be able to: <ul style="list-style-type: none"> <li>understand and determine the kinematics of motion over time (speed, acceleration, path),</li> <li>analyze and establish the relationships between causes and kinematic elements of motion, as well as to argue, the final solutions of practical problems,</li> <li>study the dynamics of both rigid and deformable bodies,</li> <li>solve practical problems of straight and curvilinear motion of the body,</li> </ul> successfully follow all professional subjects that require the knowledge of kinematics and dynamic concepts			
<b>Syllabus</b> <i>Theoretical part</i> Task and division of kinematics. Body motion. Kinematics points. Straight point motion. Speed and acceleration of the moving point. Kinematic equations of motion. Curatorial motion of a point. Speed and acceleration of the moving point. Kinematic diagrams. Translated movement of a rigid body. Rotating a rigid body around a fixed axis. Transmission gears. (belt, friction and gears). Complex motion of a point. A complex motion of a rigid body. Definition and task of dynamics. Newton's laws of motion. Straight motion of the material point under the action of constant force. Vertical shot up, down and free fall. Pieces shot, a horizontal shot. Mechanical work. Power. Mechanical energy. Kinetic and potential energy. The law of conservation of energy. <i>Practical part :</i> Application of theoretical knowledge to solve specific practical examples with necessary instructions for the particular types of tasks.			
<b>Literature</b> 1. D. Raskovic: Mechanics - Part II (in Serbian), "Građevinska knjiga", Belgrade, 1975. 2. S. Stamenković: Kinematics (in Serbian), College of Applied Technical Sciences Niš, Niš 2004. 3. S. Stamenkovic: Dynamics (in Serbian), College of Applied Technical Sciences Niš, Niš 2004			
<b>Number of active classes</b>			Other forms of teaching:
Lectures: 3	Practical classes: 3	Research work:	
<b>Teaching methods</b> Combined, interactive approach with practical problem solving.			
<b>Grading system</b> (maximum 100 points), <b>grading scale</b> from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
<b>Pre-exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
activity during theoretical lectures	<b>5</b>	written exam	<b>40</b>
practical training		oral exam	
colloquium(s)/seminar papers	<b>30+25</b>		
<b>Sum</b>	<b>60</b>	<b>Sum</b>	<b>40</b>