

<b>Study program / course:</b> Mechanical Engineering			
<b>Type and level of study:</b> Master academic studies			
<b>Course:</b> Tribomechanical systems			
<b>Lecturer:</b> Miroslav Babic, PhD			
<b>Status of course:</b> Obligatory for module M <sub>1</sub> , I semester			
<b>Number of ECTS:</b> 6			
<b>Precondition:</b> Fundamentals of tribology			
<b>Course objective</b> Course is designed with main objective to provide students' education in area of system approach to tribology which results in tribo-mechanical system concept with characteristic structure, input and output data and tribological losses.			
<b>Course goal</b> <ul style="list-style-type: none"> <li>• Knowledge and understanding: Tribo-mechanical systems, types of tribo-mechanical systems, technological aspects of tribology, tribological characteristics of the most important tribo-mechanical systems, possibilities and improvements of tribo-mechanical systems, tribological aspect of maintenance.</li> <li>• Improvement of personal skill and characteristics: System approach, capability to analyse complex technical systems from aspect of critical tribo-mechanical systems, capacity for independent learning and research, capacity for application of tribological knowledge in practice.</li> <li>• Awareness: On tribology importance from aspect of energy efficiency of technical systems and possibilities of energy and material savings through tribology on global level.</li> </ul>			
<b>Course content</b> <i>Theoretical part</i> Fundamentals of system approach to tribology. Defining and modeling of tribo-mechanical systems. Structure of tribo-mechanical systems (elements, characteristics and tribology interactions). System input parameters. System output parameters. Types of tribo-mechanical systems. Characteristics of tribology processes in the most important tribo-mechanical systems for motion transfer, power transmitting, information transfer and at production tribo-mechanical systems. Modern tribo-materials and processing of contact surfaces. Modern lubricating means. Possibilities of energy and deficient material savings through tribology. Tribometry. <i>Exercises (oral and laboratory)</i> Exercises are realized as oral and laboratory and are dedicated to identification of basic tribo-mechanical systems and influence of structural characteristics of tribo-mechanical systems on development of tribology processes. Effects of elements improvement of tribo-mechanical systems.			
<b>Literature</b> <ol style="list-style-type: none"> <li>1. Ivkovic B., Rac A., Tribology (in Serbian), Yugoslav Tribology Society, 1995.</li> <li>2. Babic M., Lubricating oil monitoring (in Serbian), Faculty of Mechanical Engineering, Kragujevac, 2004.</li> <li>3. Babić M. Mitrović B., Tribological characteristics of composites based on ZnAl alloys (in Serbian), Monograph, Faculty of Mechanical Engineering, Kragujevac, 2007.</li> <li>4. Czichos H., Tribology – a system approach to the science and technology of friction, lubrication and wear, Elsevier, 1978</li> </ol>			
<b>The number of hours of active teaching</b>			Other classes: 1
Theory: 2	Exercises: 1.6	Other forms of teaching: 0.4	
<b>Teaching methods</b> Teaching is comprised of lecturing and oral exercises. Lecturing is done with modern multimedia tool and active participation of students in analysis of case studies of characteristic tribo-mechanical systems. Exercises is realised as oral (preparation for realizations of laboratory exercises and measurement results analysis) and as laboratory with direct working at appropriate tribometry equipment which is PC supported.			
<b>Evaluation of knowledge</b> (the maximum number of points 100)			
<b>Pre-final exam obligations</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
Activities during the classes:	10	Written test	30
Laboratory exercises	30		
Preliminary exams	30		