

BM6121

Study program / course: Mechanical Engineering			
Type and level of study: Basic Academic Studies			
Course: Mechanisms of Machines			
Lecturers: Ilija Ž. Nikolić			
Status of course: Obligatory for module M ₂ , VI semester			
Number of ECTS: 6			
Prerequisite: None			
The course objective Students should get acquainted with mechanisms as the basic parts of all the machines. They are being trained for independent solving the problems of analysis and synthesis of the simpler mechanisms. They study the kinematics and dynamics of the planar mechanisms, gear power transmitters, the cam mechanisms and mechanisms with variable motions.			
The course outcome Students are able to independently solve the problems of analysis and synthesis of the simpler mechanisms what is the necessary start in machine design and calculation. Students are especially trained to perform the adequate selection of the driving engine of the machine driving shaft, what is one of the basic tasks in the engineering practice.			
Syllabus			
Theoretical study Introduction-Determination of the number of degrees of freedom of a mechanism, types and groups of mechanisms. Instantaneous centers of motion. Planar mechanisms kinematics and its solving by a computer. Planar mechanisms dynamics. Determination of the driving torque, equivalent masses and moments of inertia. The reduced mechanism. The gear transmitters, table method, the Willis formula. Harmonic drive. The cam mechanisms. Mechanisms with interrupted motion.			
Practical classes Problems solving, homeworks, tests and colloquia. (Same areas as for theoretical lecturing)			
Recommended reading			
1. Nikolić, I., "Dynamics of Machines and Mechanisms", Faculty of Mechanical Engineering, Kragujevac, 1995 (In Serbian).			
2. Nikolić, I., "Mechanisms", Lecture notes in E-form, Faculty of Mechanical Engineering, Kragujevac, 2007 (In Serbian).			
3. Živković, Ž., "Theory of Machines and Mechanisms", Faculty of Mechanical Engineering, Niš, 1992 (In Serbian).			
The number of hours of active teaching:			Other classes:
Theory: 3	Practical classes: 1.6	Other forms of teaching: Consultations 0.4	Research study: Final test 1
Methods of teaching Lecturing, Practical work, consultations (group and individual).			
Evaluation of knowledge			
Pre-final exam obligations	Points	Final exam*	Points*
Activities during the classes:	5	Final test	30
Practical classes:	5		
Colloquia and test:	40		
Homeworks:	20		
* The final test is taken only by candidates that are not satisfied with their score on tests and colloquia.			