

Study program / course: Mechanical Engineering				
Type and level of study: Basic Academic Studies				
Course: Automatic Control				
Lecturers: Ilija Ž. Nikolić				
Status of course: Obligatory for module M5, V semester				
Number of ECTS: 6				
Prerequisite: None				
The course objective Students are getting acquainted with fundamentals of automatic control. Students should be also enabled to apply the Matlab programming package (especially Matlab Simulink) for solving the problems in automatic control.				
The course outcome Students have knowledge of the basic elements of the automatic control systems, their structure and the control laws and they are capable for independent simulation of problems and design of the simpler systems of automatic control with aid of the Matlab programming package.				
Syllabus Theoretical study Basic notions and definitions of automatic control. Feedback and its properties. Types of the system's models and their linearization. Laplace direct and inverse transforms. Determination of the system output. Application of the Matlab program in automatic control. The transfer function. Block diagrams and the signal graph. The frequency analysis and the logarithmic frequency characteristics. Fundamentals of Automatic Control Systems (ACS). Sensors and pickups in ACS. The structure of the ACS and basic control laws.				
Practical classes Problems solving, laboratory work, homeworks, tests and colloquia. (Same areas as for theoretical lecturing).				
Recommended reading 1. Milojković,B.R. and Lj. T. Grujić, "Automatic Control", Faculty of Mechanical Engineering, Belgrade, 1981. (In Serbian). 2. Matijević,M., "Computer Aided Measuremet and Control", Faculty of Mechanical Engineering, Kragujevac, 2005. 3. Nikolić,I., "Fundamentals of the Automatic Control", (Lecture notes in E-form),Faculty of Mechanical Engineering, Kragujevac, 2007.				
The number of hours of active teaching:				Other classes: 1
Theory: 3	Practical classes: 1.6	Other forms of teaching: 0.4	Research study:	
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:		10	Final test	30
Homeworks		10		
Colloquium (a):		30		
Seminar(s):		20		
* The final test is taken only by candidates that are not satisfied with their score on tests and colloquia.				