

## Specification for the book of courses

<b>Study program</b>		Electrical Engineering and Computer Science		
<b>Module</b>		Electron Devices and Microsystems		
<b>Type and level of studies</b>		Undergraduate Academic Studies		
<b>The name of the course</b>		Fundamentals of Mechatronics		
<b>Lecturer (for lectures)</b>		Perić Lj. Staniša		
<b>Lecturer/associate (for exercises)</b>		Sibinović D. Vladimir		
<b>Lecturer/associate (for OFE)</b>		Sibinović D. Vladimir		
<b>Number of ECTS</b>	5	<b>Course status (obligatory/elective)</b>	Elective	
<b>Prerequisites</b>				
<b>Course objectives</b>	As a multidisciplinary science, mechatronics has found various applications in many areas, especially in automation and production. The aim of the course is to familiarise students with basic components of mechatronic systems and provide them with practical knowledge in designing simple mechatronic systems.			
<b>Course outcomes</b>	At the end of this course, students will have basic knowledge about the components of mechatronic systems and will be trained in designing simple control structures.			
<b>Course outline</b>				
<b>Theoretical teaching</b>	Introduction to mechatronic systems. System responses and behaviour. Motion dynamics. Sensors in mechatronics. Signal processing. Actuators in pneumatic, hydraulic, mechanical and electrical systems. The concept of modelling of different types of dynamical systems. Feedback concept. Microprocessor and microcontroller systems. Programmable logic controllers. Examples of designing of mechatronic systems. Intelligent systems.			
<b>Practical teaching (exercises, OFE, study and research)</b>	Practical work with electric DC motors, RC Servo motors and step motors. Work with motion sensors - encoders, as well as with other sensors used in mechatronic systems. Demonstration of various mechatronic systems with and without feedback.			
<b>Textbooks/references</b>				
1	Robert H. Bishop, "The Mechatronics Handbook", CRC Press, 2002.			
2	Clarence W. De Silva, "Mechatronics: An Integrated Approach", CRC Press, 2005.			
3	Sabri Cetinkunt, "Mechatronics", John Wiley & Sons Inc., 2007.			
4	David G. Alciatore, Michael B. Hstand, "Introduction to Mechatronics and Measurement Systems", McGraw-Hill, 2012.			
5				
<b>Number of classes of active education per week during semester/trimester/year</b>				
<b>Lectures</b>	<b>Exercises</b>	<b>OFE</b>	<b>Study and research work</b>	<b>Other classes</b>
2	2	1	0	0
<b>Teaching methods</b>	Lectures; Practical exercises; Laboratory exercises; Computer exercises; Consultations			
<b>Grade (maximum number of points 100)</b>				
<b>Pre-exam duties</b>	<b>Points</b>	<b>Final exam</b>	<b>Points</b>	
<b>Activity during lectures</b>	10	<b>Written exam</b>		
<b>Exercises</b>	20	<b>Oral exam</b>	40	
<b>Colloquia</b>				
<b>Projects</b>	30			