



# UNIVERSITY OF NIŠ

**Course Unit Descriptor**

**Faculty**

Faculty of Mechanical Engineering

## GENERAL INFORMATION

Study Program	<b>Mechanical Engineering</b>		
Study Module (if applicable)	-		
Course Title	Selected Topics in Mechatronics and Systems Control		
Level of Study	<input type="checkbox"/> Bachelor	<input type="checkbox"/> Master's	<input checked="" type="checkbox"/> Doctoral
Type of Course	<input type="checkbox"/> Obligatory	<input checked="" type="checkbox"/> Elective	
Semester	<input type="checkbox"/> Autumn	<input checked="" type="checkbox"/> Spring	
Year of Study	I		
Number of ECTS Allocated	10		
Name of Lecturer/Lecturers	Miloš S. Milošević Jelena Z. Manojlović Vlastimir Nikolić		
Teaching Mode	<input checked="" type="checkbox"/> Lectures	<input type="checkbox"/> Group tutorials	<input checked="" type="checkbox"/> Individual tutorials
	<input checked="" type="checkbox"/> Laboratory work	<input checked="" type="checkbox"/> Project work	<input checked="" type="checkbox"/> Seminar
	<input type="checkbox"/> Distance learning	<input type="checkbox"/> Blended learning	<input type="checkbox"/> Other

## Purpose and Overview (max. 5 sentences)

Acquisition of advanced knowledge of mechatronics as a multidisciplinary field of mechanical, electrical and control systems. Mastering the advanced principles of operation of mechanical and electrical components of mechatronic systems. Introduction to performed complex mechatronic systems. Mastering the advanced principles of control of complex mechatronic systems. Identification of possible directions of further development of mechatronics. Training in identifying problems in complex multi-disciplinary systems, and then defining and solving tasks of design, modeling and control of mechatronic systems, as well as team work in the field of development of advanced mechatronic systems with special emphasis on the integration of basic modules of mechatronic systems (mechanical, electrical and control) in order to achieve optimal functioning of a system as a whole.

## Syllabus (brief outline and summary of topics, max. 10 sentences)

Mechatronics as a multidisciplinary field of advanced mechanical, electrical and control systems. Advanced principles of operation of mechanical systems. Advanced principles of operation of electrical systems. Advanced principles of operation of mechatronic systems. The structure of complex mechatronic systems. Advanced principles of control of complex mechatronic systems. Advanced principles of prediction and estimation. The further development of mechatronics. Analysis of operation principles of advanced mechanical systems. Analysis of operation principles of advanced electrical systems. Analysis of complex operation principles of advanced mechatronic systems. Identification of problems in complex multi-disciplinary systems. Analysis of control principles of complex mechatronic systems. Design, modelling and control of complex mechatronic systems based on integration of basic modules of mechatronic systems (mechanical, electrical and control) in order to achieve optimal functionality of a system as a whole. Examples of performed complex mechatronic systems.

## Language of Instruction

Serbian (complete course)
  English (complete course)
  Other \_\_\_\_\_ (complete course)

Serbian with English mentoring
  Serbian with other mentoring \_\_\_\_\_

### Assessment Methods and Criteria

Pre exam Duties	Points	Final Exam	Points
Activity During Lectures	0	Written Examination	0
Practical Teaching	0	Oral Examination	40
Teaching Colloquia	60	Overall Sum	100

\*Final examination mark is formed in accordance with the Institutional documents