



# UNIVERSITY OF NIŠ

**Course Unit Descriptor**

**Faculty**

Faculty of Mechanical Engineering

## GENERAL INFORMATION

Study Program	<b>Engineering Management</b>		
Study Module (if applicable)	-		
Course Title	Process Monitoring and Control		
Level of Study	<input checked="" type="checkbox"/> Bachelor	<input type="checkbox"/> Master's	<input type="checkbox"/> Doctoral
Type of Course	<input checked="" type="checkbox"/> Obligatory	<input type="checkbox"/> Elective	
Semester	<input checked="" type="checkbox"/> Autumn	<input type="checkbox"/> Spring	
Year of Study	IV		
Number of ECTS Allocated	7		
Name of Lecturer/Lecturers	Vlastimir Nikolić, Žarko Čojbašić, Miloš Milošević		
Teaching Mode	<input checked="" type="checkbox"/> Lectures	<input type="checkbox"/> Group tutorials	<input 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)

*Introduce students to the various techniques of analysis and design of contemporary control and monitoring systems for diverse classes of technical processes and objects. Allow students to get to know models of control objects as well as basics of analysis and design of control systems for classes of technical objects and practical insight into basic control equipment.*

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

**Theoretical lectures** \* Development, significance, classes and application of control and monitoring systems. Classes of control systems. \* Representations of control systems. Modelling and simulation of various classes of objects and processes. Representing systems with transfer functions and state space models. \* Analysis and synthesis of control systems. Response, accuracy and stability of systems. \* Design of control systems. Different concepts and examples of control systems. \* Application of computer technology in control systems. Computer control systems for real time operation. \* Application of programmable logic controllers (PLCs). Application of computers in complex automation of systems. Distributed control, monitoring and SCADA systems.

**Practice** \* Computational exercises. Computer exercises – use of Matlab and its additions for simulation, analysis and design of control systems. Laboratory – operating and programming PLC controllers.

## Language of Instruction

- Serbian (complete course)       English (complete course)       Other \_\_\_\_\_ (complete course)
- Serbian with English mentoring       Serbian with other mentoring \_\_\_\_\_

## Assessment Methods and Criteria

<b>Pre exam Duties</b>	<b>Points</b>	<b>Final Exam</b>	<b>Points</b>
<b>Activity During Lectures</b>	<b>10</b>	<b>Written Examination</b>	<b>25</b>
<b>Practical Teaching</b>	<b>10</b>	<b>Oral Examination</b>	<b>25</b>
<b>Teaching Colloquia</b>	<b>30</b>	<b>Overall Sum</b>	<b>100</b>

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