



# 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	Engineering Experiment and Application Software in Mechanics
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 checked="" type="checkbox"/> Autumn <input type="checkbox"/> Spring
Year of Study	II
Number of ECTS Allocated	10
Name of Lecturer/Lecturers	Janevski B. Goran, Dragan B. Jovanović
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)

Knowledge adopted the theory of experimental research. The acquired knowledge of basic software programs applicable to solving practical engineering problems. To introduce students to the measuring systems, measuring instruments and methods of measurement. To enable students to independently and principally define scientific experimental research. Introduce students to the content and capabilities of basic software programs that are commonly used to solve problems in mechanics

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

Introduction to the measurement technique. Characteristics of instruments. The experimental model. Accuracy and reliability of measurement. Standards of measurement. Optical methods in experimental mechanics. Measuring sensors. Transducers. Measuring amplifiers. Measurement systems with computational support. Measuring the length of the translational and angular displacements. Measurement of the time and frequency. Measurement of mechanical stress and force. Torque measurement. Measuring speed. Acceleration measurement. Vibration and shock. Processing of experimental measurements on the computer (tables, graphs). The use of identifiers and commands. Data types. Logical values and command selection. Loops and iterations. Numbered structures. Series and collections. Specialized mathematical software. Numerical differentiation and numerical integration. Numerical solution of differential equations. Solving systems of linear and nonlinear equations. Graphic presentation and problem solving. Some applications in mechanics.

## Language of Instruction

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

<b>Assessment Methods and Criteria</b>			
<b>Pre exam Duties</b>	<b>Points</b>	<b>Final Exam</b>	<b>Points</b>
<b>Activity During Lectures</b>	-	<b>Written Examination</b>	<b>50</b>
<b>Practical Teaching</b>	-	<b>Oral Examination</b>	<b>Max. 50</b>
<b>Teaching Colloquia</b>	<b>50</b>	<b>Overall Sum</b>	<b>100</b>
<b>*Final examination mark is formed in accordance with the Institutional documents</b>			