UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION			
Study Program	Mechanical Engineering		
Study Module (if applicable)	Mechatronics and Control		
Course Title	Basics of Mechatronics Systems Modelling		
Level of Study	☒Bachelor	☐ Master's	☐ Doctoral
Type of Course	☐ Obligatory	☒ Elective	
Semester	☒ Autumn	☐ Spring	
Year of Study	IV		
Number of ECTS Allocated	6		
Name of Lecturer/Lecturers	Miloš S. Milošević		
Teaching Mode	☒ Lectures ☒ Laboratory work ☐ Distance learning	☒ Group tutorials ☒ Project work ☐ Blended learning	☒ Individual tutorials ☒ Seminar ☐ Other

Purpose and Overview (max. 5 sentences)

Introduction to modeling and simulation. The use of modern software packages for physical modeling and simulation of the dynamics of multi bodies with integration with software for computer control. Verification of the model and its use on practical examples of modeling and simulation of complex mechatronic systems. Modeling of complex mechatronic systems in which the functions are based on coupled effects of different physical areas. Identifying influential parameters and adjust complex mechatronic systems thus ensuring their proper function.

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

Introduction to modeling. Objectives. Motivation. The application of modeling and simulation in the identification, design and optimization of mechatronic systems. Principles and methods of modeling and simulation. Model classification. Simplifications. Faults. Modern software packages for modeling multi bodies. Comparative analysis of the features, benefits and disadvantages. The virtual modeling of mechatronic systems. Modelling of physical models. Basics of modeling in modern software packages. Forming models of mechatronic systems using a computer. Parametric models. Two-dimensional and three-dimensional models. Modeling components and complex mechatronic systems. Integration of models of various nature. Examples of modeling components of mechatronic systems, 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	10	Written Examination	0
Practical Teaching	10	Oral Examination	20
Teaching Colloquia	60	Overall Sum	100
*Final examination mark is formed in accordance with the Institutional documents			