	UNIVERSITY OF NIŠ	
Course Unit Descriptor	**Faculty**	Faculty of Mechanical Engineering

GENERAL INFORMATION

Study Program	**Mechanical Engineering**
Study Module (if applicable)	-
Course Title	Multidomain simulation and Model-Based Design in Product Development
Level of Study	☐ Bachelor ☐ Master's ☒ Doctoral
Type of Course	☐ Obligatory ☒ Elective
Semester	☐ Autumn ☒ Spring
Year of Study	I
Number of ECTS Allocated	10
Name of Lecturer/Lecturers	Anđelković R. Boban, Miroslav Mijajlović
Teaching Mode	☐ Lectures ☐ Group tutorials ☒ Individual tutorials ☐ Laboratory work ☒ Project work ☒ Seminar ☐ Distance learning ☐ Blended learning ☐ Other

Purpose and Overview (max. 5 sentences)

Introducing students to the opportunities and limitations of modern methods of simulation of mechanical systems. The transfer of knowledge to students on methods for use of modern simulation methods. Introduce students to the appropriate software packages.

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

The requirements and process of simulation. The parameters of the simulation model. Allocation of simulation methods. Recommendations for the use and limitations of simulation methods. Finite difference and finite volume. Finite element method (FEM). Boundary Element Method (BEM). Simulation of mechanical assemblies. Optimization. Planning optimization. Basic classes of optimization methods. Six Sigma analysis. Robust design. Integration of simulation methods. Fundamentals of interactive computer graphics, 3D graphics , virtual reality (VR), augmented reality (AR). Rapid product development. Rapid prototyping. Reverse engineering.

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**	50
Teaching Colloquia	50	**Overall Sum**	100

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