UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION	
Study Program	Engineering Management
Study Module (if applicable)	Management of innovation and product development
Course Title	Basics of validation 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	7
Name of Lecturer/Lecturers	Jelena D. Stefanović-Marinović, Predrag Lj. Janković
Teaching Mode	☒ Lectures ☐Group tutorials ☐ Individual tutorials ☐ Laboratory work ☒Project work ☒ Seminar ☐ Distance learning ☐ Blended learning ☐ Other

Purpose and Overview (max. 5 sentences)

Introduce students with importance of validation in product development and validation methods.
Introduce students with theory of planning experiments and basic statistic methods in theory of experiments.
Introduce students with concept of experiments and data acquisition.
Introduce students with methods of virtual validation.

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

1) Validation in product development. Integration of validation process in process of product development. 2) Managing validation process in frame of product development. 3) Theory andexperiment in engineering. Experimental, typical and serial testing. Standards and norms. Testing product according to standard. Use of statistics. Acquisition of test data. 5) Design of experiment. Performing experiment. Statistical methods: dispersion and regression analysis. Taguchi methods. Analysis and interpretation of experimental results.6) Basic methodology and product testing. Measure systems and instruments for measurement. Measurement accuracy and data processing. Principle of measurement of physical size by electronic way. Transducers and data, display and analysis of results. Analogy and digital analysis of signals. Selection of measurement system. 7) Virtual experiment. Basics of modelling and simulation of technical system. 8) Use of technology for rapid prototyping/tools in validation process.

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	5	Written Examination	0
Practical Teaching	20	Oral Examination	30
Teaching Colloquia	45	Overall Sum	100
*Final examination mark is formed in accordance with the Institutional documents			