



UNIVERSITY OF NIŠ

Course Unit Descriptor

Faculty

Faculty of Mechanical Engineering

GENERAL INFORMATION

Study program	Mechanical Engineering
Study Module (if applicable)	-
Course title	Д.3.2И.4.24 – Stochastic control systems
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	Vlastimir D. Nikolić
Teaching mode	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Group tutorials <input type="checkbox"/> Individual tutorials <input type="checkbox"/> Laboratory work <input 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 basics of the analysis and designing of the modern stochastic control systems, for various classes of mechatronic objects.

The course is targeting the training students for the calculation and design of multivariable, continuous and discrete, lineal stochastic systems, as well as nonlinear stochastic systems with a constant and variable structure.

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

1) Random variables. 2) Stochastic processes. 3) Polynomial form of scalar continuous and discrete stochastic systems models. 4) Polynomial form of multivariable continuous and discrete stochastic systems models. 5) Analysis of continuous and discrete linear stochastic systems. 6) Design of scalar continuous and discrete linear stochastic systems. 7) Design of multivariable continuous and discrete linear stochastic systems. 8) Analysis and design of linear stochastic systems with delay. 9) Optimal control of stochastic systems with delay. 10) Optimal control of nonlinear stochastic systems with a constant and variable structure.

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	50
Practical teaching	0	Oral examination	50
Teaching colloquia	0	OVERALL SUM	100

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