



UNIVERSITY OF NIŠ

Course Unit Descriptor

Faculty

Faculty of Mechanical Engineering

GENERAL INFORMATION

Study program

Mechanical Engineering

Study Module (if applicable)

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Course title

Д.2.3-И.3.20- Digital control system in mechatronics

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

Vlastimir Nikolić, Danijela Ristić-Durrant

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 to the various techniques of the analysis and projecting the contemporary digital control systems for different classes of mechatronic objects. The course is targeting the training students for the calculation and design conventional digital controllers and compensators of mechatronic systems, multivariable and digital mechatronic systems with random disturbances.

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

1) Structure of digital control systems and the process of sampling. 2) Z - transform and discrete transfer functions. 3) Realization and characteristics of discrete transfer function. 4) The concept of the digital system state. 5) Stability of digital systems. 6) Designing of conventional digital controllers of mechatronic systems. 7) Designing of digital compensators of mechatronic systems. 8) Designing of multivariable digital systems. 9) Designing of digital mechatronic systems with random disturbances. 10) Examples of digital 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	25
Practical teaching	10	Oral examination	25
Teaching colloquia	30	OVERALL SUM	100

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