



UNIVERSITY OF NIŠ

Course Unit Descriptor

Faculty

GENERAL INFORMATION

Study program

Mechanical Engineering

Study Module (if applicable)

Course title

D.2.2-1.2.23 INFORMATION TECHNOLOGY 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

Aca D. Micic

Teaching mode

Lectures Group tutorials Individual tutorials
 Laboratory work Project work Seminar
 Distance learning Blended learning Other

PURPOSE AND OVERVIEW (max. 5 sentences)

Introduction to basic programming techniques of the controller circuits using higher programming languages, principles of design of computer networks and logical system to the successful management of mechatronic processes. Mastering software tool for monitoring and managing processes, capacity for designing logical control systems and process control.

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

The concept of digital logic design, and combinational logic:

- Introduction. A digital representation of information. Numerous systems. Represent numbers. Arithmetic. Converting number one database to another. Complement. Coding. Boolean algebra. Boolean functions. Switching circuits. Implementation. Time diagrams. Reliability and failures;

System Connection:

- Introduction. TIA / EIA Serial Interface Standards. The IEEE-488 General Purpose Interface Bus (GPIB). Simple microscope. Magnifying glass;

Communications and computer networks:

- Introduction. Computer network. Techniques of resource allocation.

Design of logical systems:

- Introduction to digital logic. Semiconductor devices. Logic circuits. Technology of logic circuits. Example applications in mechatronic systems.

Synchronous and asynchronous sequential systems:

- Introduction. Synthesis of synchronous sequential systems. Synthesis of asynchronous sequential systems. Design of the controller circuits.

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		Written examination	
Practical teaching		Oral examination	100
Teaching colloquia		OVERALL SUM	100

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