

Title Microprocessor technology	Code 1010324251010320351
Field Electrical Engineering	Year / Semester 3 / 5
Specialty -	Course core
Hours Lectures: 2 Classes: - Laboratory: 1 Projects / seminars: -	Number of credits 5
	Language polish

Lecturer:

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Faculty:

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Status of the course in the study program:

Obligatory subject, Faculty of Electrical Engineering, extramural undergraduate studies, field: Electrical Engineering.

Assumptions and objectives of the course:

In-depth knowledge of theoretical and practical problems associated with the construction elements, components and microprocessor systems and the basis of their programming and design.

Contents of the course (course description):

Lecture: Number systems, codes, digital logic circuits. Construction of processors. Microprocessors, microcontrollers. Programmable Logic Controller - PLC, input / output systems - interfaces RS-xxxx, I2C Bus and other, communication systems - CAN protocols and other, surveillance systems (polling) and security, running. DSP processors, ASIC systems. Introduction to the concept of microprocessor control and measurement systems. Industrial networks in microprocessor-based distributed systems. PROFBUS and CAN. Modeling and design of microprocessor control systems. Examples of microprocessor control systems - control systems in vehicles, road crossings, gas industry, intelligent building, systems security of property. Laboratories: Acquaintance with the architecture of an exemplary microcontroller and microcontroller programming in C in terms of support internal and external devices. Fundamentals of C51 language specification, the implementation of internal operating systems such as timers and system interrupts, serial transmission, AC converter. Implementation support external devices such as LCD display, LED, matrix keyboard. Implementation of an exemplary project of collaboration microprocessor system with an external device.

Introductory courses and the required pre-knowledge:

Basic knowledge of electrical engineering, electronics and digital-circuit engineering.

Courses form and teaching methods:

The lecture supported by multimedia presentation, laboratory classes.

Form and terms of complete the course - requirements and assessment methods:

Tests in a written form, control assignments, exam, projects.

Basic Bibliography:

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Additional Bibliography:

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