

Title <b>Fundamentals of Microprocessor Technology</b>	Code <b>1010334451010320565</b>
Field <b>Computer Science</b>	Year / Semester <b>3 / 5</b>
Specialty -	Course <b>core</b>
Hours Lectures: <b>1</b> Classes: -    Laboratory: -    Projects / seminars: <b>16</b>	Number of credits <b>5</b>
	Language <b>polish</b>

**Lecturer:**

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**Status of the course in the study program:**

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

**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: Introduction to the concept of microprocessor control systems and measurement devices. Sensors and actuators. Elements of data visualization. Electrical and electronic systems of regulations. Microprocessor-based industrial networks in 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, building intelligent systems, security of property.

Project: Acquaintance with the architecture of an exemplary microcontroller and microcontroller programming in Assembler 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:**

Written/oral exam, projects.

**Basic Bibliography:**

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**Additional Bibliography:**

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