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|---|------------------------------------|
| Title<br><b>Fundamentals of Microprocessor Technology</b>                             | Code<br><b>1010315321010320849</b> |
| Field<br><b>Power Engineering</b>   | Year / Semester<br><b>1 / 2</b>    |
| Specialty<br>-  | Course<br><b>core</b>              |
| Hours<br>Lectures: <b>8</b> Classes: -    Laboratory: <b>8</b> Projects / seminars: - | Number of credits<br><b>3</b>      |
| Language<br><b>polish</b>   |                                    |

**Lecturer:**

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

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

**Assumptions and objectives of the course:**

The objective of the course is to gain thorough knowledge of the theoretical and practical issues related to the construction of electronic components and systems, including microprocessor and computer ones, and the fundamentals of their design and programming.

**Contents of the course (course description):**

Lecture: Number systems, codes, digital logic circuits - gates, flip-flops, counters, shifters. Construction of processors ? classification, schemes, CPU, bus, programmable memory, storage, interfaces. 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.

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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