

Title Computer Measuring Systems	Code 1010325231010320444
Field Electrical engineering	Year / Semester 2 / 3
Specialty -	Course core
Hours Lectures: 1 Classes: - Laboratory: - Projects / seminars: 10	Number of credits 3
	Language polish

Lecturer:

PhD Zbigniew Krawiecki
PhD Arkadiusz Hulewicz
PhD Grzegorz Wiczyński
Institute of Electrical Engineering and Electronics
60-965 Poznań, ul. Piotrowo 3a
tel.: +48 061 665 25 46, +48 061 665 26 39
e-mail: Zbigniew.Krawiecki@put.poznan.pl
Arkadiusz.Hulewicz@put.poznan.pl
Grzegorz.Wiczyński@put.poznan.pl

Faculty:

Faculty of Electrical Engineering
ul. Piotrowo 3A
60-965 Poznań
tel. (061) 665-2539, fax. (061) 665-2548
e-mail: office_deef@put.poznan.pl

Status of the course in the study program:

Obligatory course, Faculty of Electrical Engineering, field Electrotechnics.

Assumptions and objectives of the course:

The student should obtain the knowledge of the structure, software, design, and application of measuring systems.

Contents of the course (course description):

Introduction: the standard analog signals, conditioning circuits, analog-to-digital and digital-to-analog processing, sampling theorem. Definitions, classification, block structure of systems, structure and technical parameters of measuring cards, communications interfaces (RS-232C, USB, IEEE-488, HS488, serial links SPI, I2C, TOSLNIK). Local driving of computer measuring systems or their driving by power network. Wireless measuring systems and examples of their schemes. Software for systems: a programming language SCPI, hierarchical structure, programming based on two examples: HP 34401A multimeter and 33120A.generator. PLC controllers. Example of a start set equipped with a microcontroller. Measuring systems design: utilization of measuring sensor and DAQ card, systems interfering different kinds of serial interfaces with application of galvanic separation.

Introductory courses and the required pre-knowledge:

Fundamentals of mathematics, physics, metrology, electrical and electronic engineering.

Courses form and teaching methods:

Lectures, projects.

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

Test after the course lectures and reports on projects.

Basic Bibliography:

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Additional Bibliography:

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