POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Computer measurement systems

Course

Field of study	Year/Semester
Electrical Engineering	2/3
Area of study (specialization)	Profile of study
-	general academic
Level of study	Course offered in
Second-cycle studies	Polish
Form of study	Requirements
part-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
10	0	0
Tutorials	Projects/seminars	
0	10	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr inż. Zbigniew Krawiecki
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tel. 616652546
Faculty of Control, Robotics and Electrical
Engineering
ul. Piotrowo 3A, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Basic knowledge in the scope of electrotechnics, electronics, computer science and metrology. Ability of the efficient self-education in the area concerned with a chosen field of studies. Awareness of the necessity of competence broadening and ability to show a readiness to work as a team.

Course objective

Knowledge of the modern methods of measuring process automation. Knowledge of the remote control of devices, data acquisition and processing in computer measurement systems.

Course-related learning outcomes

Knowledge

Expanded knowledge in the scope of structure and design of complex microprocessor systems,

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especially for applications in measurements and control. Expanded knowledge in the scope of measurements of electrical quantities.

Skills

Ability to acquire information from the literature, data bases and other sources; ability to integrate, interpret and critically evaluate the obtained information. Ability to prepare the detailed documentation depending on realization of a given experiment, project task or research task. Ability to plan and realize measurements of the basic electrical parameters including extraction of parameters specifying electrical systems.

Social competences

Ability to think and act creatively and enterprisingly in the area of computer systems.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: evaluation of the knowledge related to the content of lectures (test, computational and problem questions, 5 to 10 questions), awarding attendance in lectures, activity and quality of perception.

Projects: evaluation of knowledge and skills related to the implementation of the project and evaluation of the report made in class or at home. Evaluation of degree of completed tasks and rewarding of activity.

Programme content

Lectures: general knowledge, classification, functional structure of measurements systems. Characteristics of selected communication interfaces used in measuring devices. SCPI recommendations, instrument model, recognition of the device status, hierarchical structure of commands system, programming functions. Remote control with PC computer- overview with examples for a multimeter, generator, power supply. Application of VISA libraries.

Projects: planning and implementation of project tasks related to a computer measuring system, use of technical documentation, remote control of the device, use of the manufacturer's control application, stage implementation of a computer measuring station project for an example of a device with a USB or Ethernet interface.

Teaching methods

Lecture with multimedia presentation supplemented by examples on the board, initiation of discussions in relation to the subject, presentation of a new topic preceded by a reminder of the previous lecture (main issues).

Projects: groups of students work as teams. Discussion on different methods and aspects of problem solutions. Detailed reviewing of particular projects documentation.

Bibliography

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Basic

1. Nawrocki W., Komputerowe systemy pomiarowe, WKŁ, 2007

2. Winiecki W., Organizacja komputerowych systemów pomiarowych, Oficyna Wydawnicza Politechniki Warszawskiej, 2006

3. Tumański S., Technika pomiarowa, Wydawnictwo WNT, 2013

4. Krawiecki Z., Odon A.: Wspomagane komputerowo stanowisko laboratoryjne do badania właściwości metrologicznych multimetrów na zakresach napięć przemiennych, Pomiary Automatyka Kontrola, 2007, vol. 53, nr 9 bis, s. 710-712

Additional

1. Nawrocki R., Rozproszone systemy pomiarowe, WKŁ, 2006

2. Lesiak P., D. Świsulski D., Komputerowa technika pomiarowa w przykładach, Agenda Wydawnicza PAK, 2002

Breakdown of average student's workload

	Hours	ECTS
Total workload	53	2,0
Classes requiring direct contact with the teacher	23	1,0
Student's own work (literature studies, preparation for ~~laboratory~~ project classes/tutorials, preparation for tests/~~exam~~, project preparation) [1]	30	1,0

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[1] delete or add other activities as appropriate