Poznan University of Technology
Faculty of Electrical Engineering

European **C**redit **T**ransfer **S**ystem

STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Computer measurement systems**	Code **1010325331010320466**

Field of study **Electrical Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 3**
Elective path/specialty **Lighting Engineering**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**

Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **part-time**

No. of hours				No. of credits
Lecture: **10**	Classes: **-**	Laboratory: **-**	Project/seminars: **10**	**3**

Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**

Education areas and fields of science and art	ECTS distribution (number and %**)**
technical sciences	**3 100%**
Technical sciences	**3 100%**

Responsible for subject / lecturer:

dr inż. Zbigniew Krawiecki
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Wydział Elektryczny
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Prerequisites in terms of knowledge, skills and social competencies:

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

Assumptions and objectives of the course:

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

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Expanded knowledge in the scope of structure and design of complex microprocessor systems, especially for applications in measurements and control - [K_W08 +]
2. Expanded knowledge in the scope of measurements of electrical quantities - [K_W11 +]

Skills:

1. Ability to acquire informstion from the literature, data bases and other sources; ability to integrate, interpret and critically evaluate the obtained information - [K_U01 +]
2. Ability to prepare the detailed documentation depending on realization of a given experiment, projest task or research task - [K_U03 ++]
3. Ability to plan and realize measurements of the basic electrical parameters including parameters extractionakże ekstrakcję parametrów charakteryzujących układy elektryczne - [K_U09 ++]

Social competencies:

1. Ability to think and act creatively and enterprisingly in the area of computer systems. - [K_K01 ++]

Assessment methods of study outcomes

Lectures:

- evaluation of the knowledge related to the content of lectures (test, computational and problem questions), awarding marks in projects
- awarding attendance in lectures, activity and quality of perception).

Projects:

- evaluation of the knowledge and skills concerned with realization of independent or group projects,
- evaluation of the project reports

Getting the additional points relating to activity,especially including:

- efficiency of application of the knowledge obtained while doing the project tasks;
- ability to work as a team doing a given project task.

Course description

- General information, classification, functional structure and dynamics of measurements systems.
- Characteristics of different kinds of communication interfaces used in measuring devices.
- SCPI standard, model of a device, recognition of the device status, hierarchical structure of commands system, programming functions.
- Remote control of devices with PC computer, examples of a multimeter and generator.
- Application of DAQ cards in measuring systems - structure, functions, parameters, configuration.

Basic bibliography:

1. W. Winiecki, Organizacja komputerowych systemów pomiarowych, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 1997.
2. P. Lesiak, D. Świsulski, Komputerowa technika pomiarowa, Agenda Wydawnicza Pomiary Automatyka Kontrola, Warszawa 2002.
3. W. Nawrocki, Komputerowe systemy pomiarowe, WKŁ, Warszawa 2007.

Additional bibliography:

1. W. Nawrocki, Rozproszone systemy pomiarowe, WKŁ, Warszawa 2006.

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	10
2. Participation in projects classes	10
3. Participation in consulting with lecturers	11
4. Realization of projects	30
5. Preparation to the exam	9

Student’s workload

Source of workload	hours	ECTS
Total workload	70	3
Contact hours	31	1
Practical activities	39	1