FACULTY OF ELECTRICAL ENGINEERING

SUBJECT CARD

Name in Polish:	**Systemy pomiarowe i teleinformatyczne w elektrotechnice**
Name in English:	**Measuring systems in the electrical engineering**
Main field of study (if applicable):	**Electrical Engineering**
Specialization (if applicable):	**Renewable Energy Sources**
Level and form of studies:	**2nd level, full-time**
Kind of subject:	**obligatory**
Subject code:	**ELR051316**
Group of courses:	**NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):	15		15		
Number of hours of total student workload (CNPS):	30		30		
Form of crediting:	crediting with grade		crediting with grade		
For group of courses mark (X) final course:					
Number of ECTS points:	1		1		
including number of ECTS points for practical (P) classes :			1		
including number of ECTS points for direct teacher-student contact (BK) classes:	0.70		0.70		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Has basic knowledge about functionalities of IT systems
2. Has knowledge about ANSI C/ PASCAL programming

SUBJECT OBJECTIVES

C1. basic knowledge about transmission preparation and ICT data processing technology
C2. preparation for problem solving in a design team

SUBJECT LEARNING OUTCOMES

relating to knowledge:

PEU_W01 has knowledge about computer communication and data exchange for engineering purposes
PEU_W02 has knowledge about network event modeling

relating to skills:

PEU_U01 is able to source information about establishing connection from literature and other sources
PEU_U02 is able to implement communication procedures in the Windows operating system

relating to social competences:

PEU_K01 is able to evaluate design team performance and perform a critical analysis

PROGRAMME CONTENT

	Form of classes - lecture	Number of hours:
Lec 1	Objectives and tasks of ICT networks for engineering purposes	2
Lec 2	The program structure and data types and objects integrated with the operating system	2
Lec 3	Topology and logical organization of ICT network	2
Lec 4	Selected elements of network connections: Ethernet, Token Ring, Wi-Fi, Bluetooth, USB, RS232, RS485, GPIB	2
Lec 5	Communication in client-server model - programming of the control events	2
Lec 6	Application layer protocols on the example of HTTP, FTP and custom protocols rules for implementing the user	2
Lec 7	Client-server communication model. The notion of "thin" client. Data storage and process servers	2
Lec 8	Time for self-studies and preparation for a computer-based test that will be performed in the laboratory.	1
	Total hours:	**15**

Form of classes - laboratory		Number of hours:
Lab 1	Network programming in ANSI C/ PASCAL	2
Lab 2	The program structure and data types and objects integrated with the operating system	2
Lab 3	Support local ports - analysis and modification of the exemplary	2
Lab 4	Support network ports - analysis and modification of the exemplary	2
Lab 5	Communication in client-server model - programming of the control events	2
Lab 6	Programming user application - working in groups	2
Lab 7	Programming user application - working in groups - application testing	2
Lab 8	Laboratory assessment	1
	Total hours:	**15**

TEACHING TOOLS USED
N1. introductory lecture with slideshow and elements of e-learning
N2. students code case-based programmes both individually and in teams
N3. remote self-education - http://eportal.eny.pwr.edu.pl - partialy and final tests
N4. consultation

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT		
Evaluation *F – forming (during semester)* *P – concluding (at semester end)*	**Educational effect number**	**Way of evaluating educational effect achievement**
F1(W)	PEU_W01 PEU_W02	Remote self-teaching - partial test. E-learning platform: http://eportal.eny.pwr.edu.pl
F2(W)	PEU_W01 PEU_W02	the final test in the computer laboratory using educational platform: http://eportal.eny.pwr.edu.pl
P(W)	P=0.15xF1 + 0.85xF2	
F1(L)	PEU_U01 PEU_U02 PEU_K01	Development of electronic educational platform partial reports: http://eportal.eny.pwr.edu.pl
P(L)	P=F1	

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Przewodnik po sieciach lokalnych, Greg Nunemacher, MIKOM (any edition)
[2] Programowanie w ANSI C, HELION (any edition)
[3] E-learning platform: http://eportal.eny.pwr.edu.pl
[4] Net-literature

SECONDARY LITERATURE:

[1] Nowoczesne sieci miejskie,J.Jaworski, R.Morawski,J.Olędzki,WNT(any edition)
[2] Programowanie w DELPHI, Helion (any edition)
[3] JAVA Kompendium programisty, Helion, (any edition)

SUBJECT SUPERVISOR

Jarosław Szymańda, jaroslaw.szymanda@pwr.edu.pl