

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Sieci teleinformatyczne w technice**
 Name in English: **Teleinformatic networks in the technics**
 Main field of study (if applicable): **Control Engineering and Robotics**
 Specialization (if applicable): **Automation and Control in Electrical Power Systems**
 Level and form of studies: **2nd level, full-time**
 Kind of subject: **optional**
 Subject code: **ARR041310**
 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
3. Is able to write algorithms in the ANSI C, PASCAL programming language
4. Recognises the need of continuous education, developing professional, personal and social competences and it able to define opportunities to do so

SUBJECT OBJECTIVES

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

SUBJECT EDUCATIONAL EFFECTS*relating to knowledge:*

- PEK_W01 has knowledge about computer communication and data exchange for engineering purposes
- PEK_W02 has knowledge about network event modeling

relating to skills:

- PEK_U01 is able to source information about establishing connection from literature and other sources
- PEK_U02 is able to implement communication procedures in the Windows operating system

relating to social competences:

- PEK_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	Multitasking and concurrency of processes in modern computer systems	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	Presentation of the most important network protocols: TCP/IP and UDP/IP	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	Final test	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.wroc.pl> - partialy and final tests
- N4. consultation

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation <i>F - forming (during semester) P - concluding (at semester end)</i>	Educational effect number	Way of evaluating educational effect achievement
F1(W)	PEK_W01 PEK_W02	Remote self-teaching - partial test. E-learning platform: http://eportal.eny.pwr.edu.pl
F2(W)	PEK_W01 PEK_W02	The final test in the computer laboratory using educational platform: http://eportal.eny.pwr.edu.pl
P(W)	$P=0.15 \times F1 + 0.85 \times F2$	
F1(L)	PEK_U01 PEK_U02 PEK_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 wersja 5.0 lub późniejsze, HELION (any edition)
- [3] E-learning platform: <http://eportal.eny.pwr.edu.pl>
- [4] Netografia

SECONDARY LITERATURE:

- [1] Nowoczesne sieci miejskie, J.Jaworski, R.Morawski, J.Olędzki, WNT(any edition)
- [2] Programowanie w DELPHI, wersja 5.0 lub późniejsze, (any edition)
- [3] JAVA Kompendium programisty, Helion, (any edition)

SUBJECT SUPERVISOR

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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT
ARR041310 - Teleinformatic networks in the technics
AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY **Control Engineering and Robotics**
AND SPECIALIZATION **Automation and Control in Electrical Power Systems**

Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)	Subject objectives	Programme content	Teaching tool number
PEK_W01	S2ASE_W13	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.3 N.4
PEK_W02	S2ASE_W13	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.3 N.4
PEK_U01	S2ASE_U12	C.1 C.2	Lab1 Lab2 Lab3 Lab4 Lab5 Lab6 Lab7	N.2 N.4
PEK_U02	S2ASE_U12	C.1 C.2	Lab1 Lab2 Lab3 Lab4 Lab5 Lab6 Lab7	N.2 N.4
PEK_K01	K2AiR_K06	C.2	Lab5 Lab6 Lab7	N.2 N.4