

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): **Industrial Control Engineering**
 Specialization (if applicable): **Automation of Machines, Vehicles and Apparatus**
 Level and form of studies: **2nd level, full-time**
 Kind of subject: **optional**
 Subject code: **APR011310**
 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 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	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	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 <i>F - forming (during semester) P - concluding (at semester end)</i>	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)	$P=0.15 \times F1 + 0.85 \times F2$	
F1(L)	PEU_U01 PEU_U02 PEU_K01	Development in electronic form of partial reports. E-learning platform: 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] Net-literature

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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