FACULTY OF ELECTRICAL ENGINEERING

SUBJECT CARD

Name in Polish:	**Sieci komputerowe**
Name in English:	**Computer networks**
Main field of study (if applicable):	**Control Engineering and Robotics**
Specialization (if applicable):	
Level and form of studies:	**1st level, full-time**
Kind of subject:	**obligatory**
Subject code:	**ARR041303**
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 computer literacy
2. Has basic knowledge about functionalities of IT systems
3. Has basic knowledge about computer programming
4. Is able to write computer programmes based on given algorithm
5. 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. acquisition of decision making skills in designing local computer networks on small and medium scale
C3. preparation for problem solving in a design team

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:

PEK_W01 has basic knowledge about computer communication and data exchange for engineering purposes
PEK_W02 dentifies basic design guidelines for building local computer networks

relating to skills:

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

relating to social competences:

PEK_K01 is able to think and action in a creative and enterprising manner

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	Network topology and physical layers: Ethernet and Token Ring. Ethernet frames. Logical organization of networks: local (LAN), metropolitan (MAN), wide area (WAN) and intranet (corporate networks)	2
Lec 4	Backbone network. Network components: repeater, bridge, router, gateway and hub	2
Lec 5	Breakdown of key network components of Unix operating systems. Information resource sharing.	2
Lec 6	Network protocols: TCP/IP, UDP and NFS	2
Lec 7	Client-server communication model. The notion of "thin" client. Data storage and process servers. Terminal as a service and its role in managing wide area networks.	2
Lec 8	Final test	1
	Total hours:	**15**

Form of classes - laboratory		**Number of hours:**
Lab 1	Software as a service sessions in network systems	2
Lab 2	Information commands Unix system	2
Lab 3	Network sharing of files and folders	2
Lab 4	Project management - teamwork	2
Lab 5	Layer programming - shell variables	2
Lab 6	Process control	2
Lab 7	Event monitoring and identification	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. Students prepare interim reports electronically: e-learning platform: http://eportal.eny.pwr.edu.pl
N4. Remote self-education - http://eportal.eny.pwr.edu.pl: partial and final tests
N5. Consultations

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation *F – forming (during semester)* *P – concluding (at semester end)*	**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	Final test (final) in the presence teacher classes in the computer lab: e-learning platform: http://eportal.eny.pwr.edu.pl
P(W)	P=0.15xF1 + 0.85xF2	
F1(L)	PEK_U01 PEK_U02 PEK_K01	Evaluation prepared 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] TCP/IP. Administarcja sieci, Craig Hunt, OW READ ME (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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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT
ARR041303 - Computer networks
AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY **Control Engineering and Robotics**

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	K1AiR_W11 K1AiR_W12 K1AiR_W14	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.4 N.5
PEK_W02	K1AiR_W11 K1AiR_W12 K1AiR_W14	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.4 N.5
PEK_U01	K1AiR_U09 K1AiR_U10 K1AiR_U12	C.2 C.3	Lab1 Lab2 Lab3 Lab4 Lab5 Lab6 Lab7	N.2 N.3 N.4 N.5
PEK_U02	K1AiR_U09 K1AiR_U10 K1AiR_U12	C.2 C.3	Lab1 Lab2 Lab3 Lab4 Lab5 Lab6 Lab7	N.2 N.3 N.4 N.5
PEK_K01	K1AiR_K01	C.3	Lab4 Lab5 Lab6 Lab7	N.2 N.3 N.4 N.5