

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Sieci komputerowe**
 Name in English: **Computer networks**
 Main field of study (if applicable): **Industrial Control Engineering**
 Specialization (if applicable):
 Level and form of studies: **1st level, full-time**
 Kind of subject: **obligatory**
 Subject code: **APR011303**
 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 LEARNING OUTCOMES*relating to knowledge:*

- PEU_W01 has basic knowledge about computer communication and data exchange for engineering purposes
 PEU_W02 identifies basic design guidelines for building local computer networks

relating to skills:

- PEU_U01 is able to source information about establishing connection from literature and other sources
 PEU_U02 is able to exploit built-in operating system communication procedures

relating to social competences:

- PEU_K01 knows the possibilities of improving professional skills and is prepared to solve problems in the project team.

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	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	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
<p>N1. Introductory lecture with slideshow and elements of e-learning</p> <p>N2. Students code case-based programmes both individually and in teams</p> <p>N3. Students prepare interim reports electronically: e-learning platform: http://eportal.eny.pwr.edu.pl</p> <p>N4. Remote self-education - http://eportal.eny.pwr.edu.pl: partial and final tests</p> <p>N5. Consultations</p>

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT		
Evaluation <i>F - forming (during semester)</i> <i>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	Final test (final) in the presence teacher classes in the computer lab: e-learning platform: http://eportal.eny.pwr.edu.pl
P(W)	$P=0.15 \times F1 + 0.85 \times F2$	
F1(L)	PEU_U01 PEU_U02 PEU_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
<p>PRIMARY LITERATURE:</p> <p>[1] Przewodnik po sieciach lokalnych, Greg Nunemacher, MIKOM (any edition)</p> <p>[2] TCP/IP. Administracja sieci, Craig Hunt, OW READ ME (any edition)</p> <p>[3] E-learning platform: http://eportal.eny.pwr.edu.pl</p> <p>[4] Net-literature</p> <p>SECONDARY LITERATURE:</p> <p>[1] Nowoczesne sieci miejskie, J.Jaworski, R.Morawski, J.Olędzki, WNT (any edition)</p> <p>[2] Programowanie w DELPHI, wersja 5.0 lub późniejsze, (any edition)</p> <p>[3] JAVA Kompendium programisty, Helion, (any edition)</p>

SUBJECT SUPERVISOR
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