DESCRIPTION OF THE COURSES

- Course code: ELR1307
- Course title: TELEINFORMATIC NETWORKS AND SYSTEMS IN TECHNICS
- Language of the lecturer: Polish

Course form	Lecture	Classes	Laboratory	Project	Seminar
Number of hours/week*	1		1		
Number of hours/semester*	15		15		
Form of the course completion	test		problem tasks		
ECTS credits	1		1		
Total Student's Workload	30		30		

- Level of the course (basic/advanced): advanced
- Prerequisites: informatics fundamentals.
- Name, first name and degree of the lecturer/supervisor: Jarosław Szymańda, D.Sc., Ph. D
- Names, first names and degrees of the team's members:
    1. LESZEK WOŹNY   Ph. D.
    2. JACEK REZMER   Ph. D.
- Year:..I......   Semester:........2.......
- Type of the course (obligatory/optional): optional
- Aims of the course (effects of the course):

Acquaintance of basic notions from the range of computer transport and the exchange of information. The skill projecting local nets on the base of the computers of the PC. Individual system solutions - the programming of network cards and steering the packets (pktdrv) in nets ethernetowych - with the use of function and procedures in the languages of higher level: DELPHI, C ++, JAVA.

- Form of the teaching (traditional/e-learning): traditional
- Course description

Introduction of basic notions from the range of computer transport and exchange and sharing the information in inżynierskich workings. Device and net physical Ethernet and Token Ring. Organizations and documents of universal tasks. Models of the layers of THE AXIS (Open Systems Interconnection). The topologies of local nets (lan), municipal (MAN) and different. Communication minutes for layers – the notion of network frame boxes. More important network procedures of the operating systems of UNIX and MS Windows. Network minutes: TCP / IP, UDP, NFS and encapsulation and the decapsulation of packets. The technical aspects of the transport the customer- the server, in this the chosen elements of the organization of supervisory tasks. Basic principles of projecting local nets on the base of the computers of the PC. Individual system solutions – the configuration of network cards and steering packets in nets ethernetowych. The review of the more important elements of the programming and modelling network events with

utilization of functions built-in in languages objects: DELPHI, and script (JAVASCRIPT, PYTHON).

- Lecture:

Particular lectures contents	Number of hours
1. Purposes and tasks of teleinformatic networks in the engineering acting. Multitasking and multiprocessing of modern computer systems. Informative resource sharing.	*2.0*
2. Operative aspects of computers connection and creations of communication networks. Model OSI and Project 802.X. Meaning of layers: channels, networked and transported in the network selection type, its capabilities and reliability.	*2.0*
3. Networks topology and compare of physical layer: Ethernet and Token Ring	*2.0*
4. Logical network structures: local (LAN) and metropolitan (MAN) with public and excreted. Standards: FDDI i X.25 (also Frame Relay).	*2.0*
5. Major of operating network system: UNIX i QNX. Network protocols: TCP/IP, UDP i NFS	*2.0*
6. The examples of steering the packet broadcast in the nets of type Ethernet with utilization of the function and procedures in the languages of the programming of objects DELPHI and script (JAVA / JAVASCRIPT, PYTHON).	*2.0*
7. Test	*1.0*
8. The discussion of the colloquium. Introduction to application dedicated used within the of laboratory occupations.	*2.0*

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:

The laboratory is led in second half of semester in dimension of two hours every week. Students realize, under the control of the leader, seven subjects making up the illustration of propeled lecture questions severally.

Laboratory subjects:

1.. The configuration of system communication procedures (HOST, IP, GATEWAY, MASK). Sessions of the terminal work in systems WINDOWS and UNIX.
Addresses and the sending out team of system announcements (nests and services).

2. Aplications layer (http, smtp, ftp). The „thin" customer comunicators.

3. Network procedures and functions service TCP / IP in DELPHI (komponety), JAVA / JS.

4. The programming of the application dedicated –the cz. And – Choice and the definition of the parameters of the model.

5. The programming of the application dedicated –cz. II – Monitoring and the identification of events.

6.. The programming of the application dedicated –cz. III – decission Algorithms. The optimization.

7.. The examples of the programming of united applications through script interfaces - Javascript, PHP, CGI(Delphi) or APLETY JAVA. Projects the system the customer-server.

- Project – the contents:
- Basic literature:
  1. Przewodnik po sieciach lokalnych, Greg Nunemacher, MIKOM 1996
  2. Nowoczesne sieci miejskie, J.Jaworski, R.Morawski, J.Olędzki, WNT 92

3. Programowanie w DELPHI, wersja 4.0 lub późniejsze, wydawnictwo dowolne
- Additional literature:
  1. Programowanie zastosowań sieciowych w systemie UNIX, W. R. Stevens, WNT 1995
  2. TCP/IP. Administarcja sieci, Craig Hunt, OW READ ME 1996,
  3. QNX. System operacyjny, Krzysztof Sacha, X-serwis W-wa 1995
  4. Opracowania i materiały firm: Microsoft, Hewlett Packard, QNX Software Systems Ltd, (*Accessible at the the leader of the occupation*)
- Conditions of the course acceptance/credition: Derivation affirmative grade of lecture test and laboratory tasks.

* - depending on a system of studies