

## DESCRIPTION OF THE COURSES

- Course code: ARR1308
- Course title: TELEINFORMATIC NETWORKS AND SYSTEMS
- Language of the lecturer: Polish

<i>Course form</i>	<i>Lecture</i>	<i>Classes</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Number of hours/week*</i>	2		1		
<i>Number of hours/semester*</i>	30		15		
<i>Form of the course completion</i>	test		problem tasks		
<i>ECTS credits</i>	2		1		
<i>Total Student's Workload</i>	60		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:..1..... Semester:.....2.....
- Type of the course (obligatory/optional): optional
- Aims of the course (effects of the course):

Knowledge of fundamentals comprehensive in the way of computer of communications processing with exchange and sharing information. Ability to designing of local networks on the basis PC computers. Respective of system solution - network card programming and packed control (pktdrv) of ethernet network – together with functions and high level procedures using languages: BP, DELPHI, C++, JAVA

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

Introduction to fundamentals comprehensive in the way of computer of communications processing with exchange and sharing information. Physical networks – Ethernet, Token Ring. Models layer - networked, transported and interprocess communication. Logical structures: local networks and metropolitan area (MAN). Layer communication and co-ordinate parity. Users interface: BSD and TLI. Major networked systems based on UNIX - on the commercial platform: Hewlett-Packard with QNX Software Systems Ltd. Network protocols: TCP/IP, UDP, NFS. Technical aspect of client-server communication, therein some rules of acknowledged connectionless operation. Designing of local networks on the basis PC computers. Respective of system solution - network card programming and packed control (pktdrv) of ethernet network – together with functions and high level procedures using languages: BP, DELPHI, C++, JAVA

- Lecture:

<i>Particular lectures contents</i>	<i>Number of</i>
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	<i>hours</i>
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. Backbone network. Network devices: repeater, bridge, router, gateway and hub.	2.0
6. Some of communcation protocols of the “layer” with peer backbone networks (PPP). Conception of the frame on basis first layer of MAC. Station direct access of transmission medium.	2.0
7. User programming interface (API) in communication protocols: BSD (Berkeley Sockets) and TLI (Transport Layer Interface)	2.0
8. Major of operating network system: UNIX i QNX. Network protocols: TCP/IP, UDP i NFS.	2.0
9. Communication model of client-server solution. Rules of control tasks and data processing. Standard SNMP in devices automatic control. Files and processing servers.	2.0
10. Designing of local networks on the basis PC computers. Diagnoses and analysis of request of user systems with estimation finality arrangements.	2.0
11. Services software on PC TCP/IP. Packed configuring. Terminal sessions on DOS-UNIX	2.0
12. Model of samples realization of local network on basis of Ethernet with connection to WAN (therein "firewall-e" software nor hardware)	2.0
13. Individual system solution. Network cards programming with packed transmission control using Ethernet physical layer. (High level programming BP ,DELPHI, JAVA..	2.0
14. Network developmental perspectives of WAN. Compliance of modem communication of remote LAN network administration. Public networks POLPAK (TP S.A., CROWLEY and so).	2.0
15. Written test	2.0

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

Students individually realising, under leader control, tasks amount to illustrations of the topic lecture and in the two-person group laboratory compile chosen problem. Each topic comprises consecutive realization stage: theoretical working-out, algorithmization and programming, start-up and acceptance testing with documenting. Students group choose one wide topic. Themes are changed in each academic year and not are repeated.

Problem tasks:

1. Commercial communication packed configuration.

Terminal session on DOS, WINDOWS and Unix (HP-UX, Linux) systems.

2. Networked procedures and services function TCP/IP in BP and DELPHI (components).
3. Addressing and broadcasting systems of operator user-exit routine (sockets and services).
4. Interconnections and associations.
5. Application of layer protocols (http, smtp, pop,). Combade of thin-clients.
6. Controlling and monitoring by script programming – Javascript, PHP, Perl, CGI
7. Client-server system designed. User interface in DELPHI, VB , JAVA
  - 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. Administracja 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
  - Conditions of the course acceptance/credition: Derivation affirmative grade of lecture test and laboratory tasks.

\* - depending on a system of studies