Poznan University of Technology
**Faculty of Electronics and Telecommunications**

**E**uropean **C**redit **T**ransfer **S**ystem

| Title<br>**Computer Networks** | Code<br>**1018071710108210173** |
|---|---|
| Field<br>**Electronics and Telecommunications** | Year / Semester<br>**4 / 7** |
| Specialty<br>**-** | Course<br>**core** |
| Hours<br>Lectures: **2**    Classes: **-**    Laboratory: **2**    Projects / seminars: **-** | Number of credits<br>**0** |
| | Language<br>**polish** |

**Lecturer:**

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**Status of the course in the study program:**

> Obligatory course for students of Electronics and Telecommunications.

**Assumptions and objectives of the course:**

> To provide students with the knowledge concerning the architecture, standards and applications of LAN, MAN and WAN networks. The most important problems concerning each layer of the Open Systems Interconnection (OSI) reference model are examined.

**Contents of the course (course description):**

> Lectures: The development and significance of computer networks. Classification of computer networks. Communication protocols. The OSI Reference Model.  SNA architecture. TCP/IP protocol stack. Physical media for computer networks including twisted pair, coaxial cable, optical fibers and wireless connections. Data link layer and its protocols: algorithms for reliably transmitting data over unreliable lines. IEEE 802 standards for local area networks. Generic cabling system. Network equipment: hubs, bridges, switches. WLAN networks. Network layer, especially routing, congestion control, and internetworking. Routers. Tutorial view of IP protocol. Transport layer services and protocols - TCP, UDP. The application-oriented layers. INTERNET - architecture, addressing, protocols, standards and services. Network security.

> Laboratory classes: Networking tools in Windows XP. WireShark as an example of network protocols analyzer. Ethernet frames capture and analysis. CISCO routers configuration. Configuration of subnetworks, masking IP addresses. Routing protocols: RIP, IGRP, RIPv2. Static routing. DHCP protocol. The structural cabling system. Translating IP addresses on a router, NAT/PAT.

**Introductory courses and the required pre-knowledge:**

> Basic knowledge of computer organization and architecture.

**Courses form and teaching methods:**

> Lectures supported by multimedia presentations. Students are given the copy of all presentations. On laboratory work students are given every exercise description and report forms.

**Form and terms of complete the course - requirements and assessment methods:**

> Tests, individual projects, and written exam. The mandatory lab work must be approved before students are allowed to take the exam.

**Basic Bibliography:**

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**Additional Bibliography:**

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