Cracow University of Technology

COURSE TITLE: COMPUTER NETWORKS

Institute/Division: **Faculty of Electrical and Computer Engineering, E-13**
Number of contact hours: **45**
Course duration: **1 semester (Fall)**
ECTS credits: **6**

Course description:

The course comprises lectures, laboratory exercises and individual project. It is designed to provide the student with understanding of modern networking technologies and basics of network administration.

The topics of the lectures include:

Introduction to communication networks – requirements and basic concepts. Computer networks architectures. OSI and TCP/IP models. Fundamentals of data transmission: media, encoding, error detection and reliable communication. Local area networks. Ethernet and token - based protocols. Networks interconnection. IP protocols – IPv4 and IPv6. Fundamental routing algorithms – distance vector and link state methods. Interdomain routing. Address translation and error reporting protocols - ARP, RARP and ICMP. Transport layer protocols – UDP and TCP. Host configuration. Domain name service – servers and name resolution. Electronic mail, world - wide web and network management protocols. Fundamentals of wireless networking (802.11 standards). Selected aspects of network security: threats and essential tools. Secure protocols and short introduction to cryptography.
Laboratory exercises and individual project are aimed to supply additional practical knowledge in the area of computer networks protocols and fundamental network administration tasks.

Literature: Selected reviews from scientific literature.
Course type: Lectures (20h), laboratory (20h) and project (5h)
Assessment method: Project, laboratory exercises and written exam.
Target group: Students in Computer Science, Control and Electrical Eng**.**
Contact Person: dgrela@pk.edu.pl