GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer Networks and Internet Technologies, PG_00038089		
Field of study	Automation, Robotics and Control Systems		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2020/2021
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Full-time studies	Mode of delivery	e-learning
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Control Systems Engineering -> Faculty of Electrical and Control Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Rutkowski	
	Teachers	dr inż. Tomasz Rutkowski mgr inż. Tomasz Karla	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

E-learning hours included: 30.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	3.0	42.0	75

Subject objectives

The aim of the course is to familiarize students with the basic issues related to computer networks and internet technologies

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U05	Practical skills in use of various techniques of engineering tasks realization for computer networks diagnosis and simple internet applications purposes.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
K6_W06	Student describe computer networks elements (hardware and software). Uses basics tools for wire Ethernet cables and diagnosis purposes. Differentiates advantages and disadvantages of various transmissions media types. Interprets role and functions of particular layers in the ISO/OSI reference model. Interprets functions of the ARP, IP, TCP and UDP protocols. Specifies and describes basic protocols of the application layer. Describe functioning of the wireless network WLAN (WiFi). Uses on the basic level the (X)HTML, CSS, PHP, SQL languages and MySQL database for the simple, dynamic web pages construction purposes.	[SW1] Assessment of factual knowledge
K6_W09	Student in a basic way describes the security mechanisms of the TCP/IP model protocols	[SW1] Assessment of factual knowledge
K6_K02	Skills in individual work - building of simple, dynamic web pages with (X)HTML, CSS, PHP, SQL languages and MySQL database. Skills in group work - building, configuration and diagnostics of heterogeneous Ethernet network.	[SK3] Assessment of ability to organize work [SK1] Assessment of group work skills [SK2] Assessment of progress of work

Subject contents	LECTURE Computer networks history and computer networking fundamentals. Types of computers networks (LAN, WAN, MAN). Types of LAN network topology. Transmissions media types and network cabling types. ISO/OSI reference model. Ethernet network. Role and functions of the network accessories. TCP/IP protocols family. IP addressing, static and dynamic addresses. Role and functions of the DNS and DHCP servers. Wireless network WLAN (WiFi). Application layer selected protocols (including: HTTP, FTP, SMPT, POP, SSL, SSH). Networking and network security. Client-server and peer-to-peer technologies. Introduction to (X)HTML, CSS, PHP and SQL languages. The basics of database administration (MySQL). Internet programming examples in Java (applets, servlets), JavaScript, AJAX, Flash and RSS channels. TRAINING LABORATORY Wire and diagnosis of Ethernet cable basic types. The basic throughput testing methods for various transmissions media types. Creating, configuration and testing of small heterogeneous computer network. Domain owner identification. Datagram s route identification. The basics of IP network traffic analysis. Create simple connected web pages with (X)HTML. Cascading style sheets CSS utilization in the project. Dynamic web pages construction with PHP and MySQL database.
Prerequisites and co-requisites	No requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Tests during training laboratoryis	50.0%	10.0%
Laboratory project	50.0%	30.0%
Lecture test - part 1	50.0%	30.0%
Lecture test - part 2	50.0%	30.0%

Recommended reading

Basic literature	1. Douglas E. C.: Sieci komputerowe i intersieci. Warszawa: WNT, 2000. 2. Gajda W. HTML, XHTML i CSS. Praktyczne projekty. Helion, 2007. 3. Welling L., Thomson L.: PHP i MySQL. Tworzenie stron WWW, Vademecum profesjonalisty. Gliwice: Helion, 2005.
Supplementary literature	1. Krysiak K.. Sieci komputerowe, Kompendium. Wydanie II. Helion, 2005. 2. Lemay L. HTML i XHTML dla każdego. Helion, 2004. 3. Meyer E. A. CSS według Erica Meyera, Sztuka projektowania stron WWW. Helion, 2005. 4. Zakas N.C., McPeak J., Fawcett J. Ajax, Zaawansowane programowanie. Helion, 2007. 5. Praca zbiorowa. PHP5, Apache i MySQL od podstaw. Helion, 2005.
eResources addresses	

Example issues/ example questions/ tasks being completed

[1] List and describe basics elements of computer networks.
[2] Describe advantages and disadvantages of various transmissions media types.
[3] Describe role and functions of particular layers in the ISO/OSI reference model.
[4] Explain functions of the ARP, IP, TCP and UDP protocols.
[5] List and describe basic protocols of the TCP/IP model application layer.

Work placement	Not applicable