Computer Networks - course description

General information

Course name	Computer Networks
Course ID	11.3-WK-MATD-SK-L-S14_pNadGenTZ18H
Faculty	Faculty of Mathematics, Computer Science and Econometrics
Field of study	Mathematics
Education profile	academic
Level of studies	Second-cycle studies leading to MS degree
Beginning semester	winter term 2019/2020

Course information

Semester	2
ECTS credits to win	5
Course type	optional
Teaching language	polish
Author of syllabus	• mgr inż. Andrzej Majczak

Classes forms

The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Laboratory	30	2	-	-	Credit with grade
Lecture	30	2	-	-	Exam

Aim of the course

The aim of the course is to provide current knowledge of the theory and practice of computer networks and the Internet, showing how running applications and protocols, what is the layering network architecture and how to build a functional and secure applications.

Prerequisites

Information Technology, Computer Programming.

Scope

Lecture:

1. Computer Networks and the Internet.
2. Application Layer.
3. Transport Layer.
4. The Network Layer.
5. The Link Layer and Local Area Networks.
6. Wireless and Mobile Networks.
7. Multimedia Networking.
8. Security in Computer Networks.
9. Network Management.

Laboratory:

1. Network access and physical media.
2. Network devices and network traffic.
3. Basic diagnostic tools and solving problems.
4. Analyzing packets introduction to Wireshark.
5. Technology Web and the HTTP protocol.
6. Internet e-mail.
7. The DNS namespace.
8. Transport Protocol TCP connection-oriented.
9. Connectionless UDP transport protocol.
10. IP, transmission and addressing on the Internet.
11. Wireless Networks.
12. Security on the network.
13. Network Design.

Teaching methods

Lecture: the traditional lecture. Laboratory: individual work at the computer. Processed material according to instructions that every student gets at the beginning of class. Discussions leading to deepen knowledge and understanding of the processed material.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student know the basic methods and tools for testing and analysis of connections in the network; can use a program analyzing packets and analyze performance of protocols and network applications.		• activity during the classes • an exam - oral, descriptive, test and other	• Lecture • Laboratory
Student has ordered knowledge in the theory, concepts and principles of operation of computer networks and the Internet, knowledgeable about the basics of configuring network devices.		• activity during the classes • an exam - oral, descriptive, test and other	• Lecture • Laboratory

Assignment conditions

1. Checking the degree of student preparation and their activities during the classes.
2. Getting good ratings from all the laboratory to be implemented under the laboratory.
3. Written exam at the end of the course.

Recommended reading

1. James F. Kurose, Keith W. Ross, Computer Networking: A Top-Down Approach, 5/E, Addison-Wesley, 2010.
2. Andrew S. Tanenbaum, David J. Wetherall, Sieci komputerowe. Wydanie V, Helion, 2012.

Further reading

1. William Stallings, Data and Computer Communications. Prentice Hall, 2007.
2. Al Anderson, Ryan Benedetti, Head First. Sieci komputerowe. Helion, 2010.
3. Rafał Pawlak, Okablowanie strukturalne sieci. Teoria i praktyka. Wydanie III, Helion, 2011

Notes

Modified by dr Alina Szelecka (last modification: 03-07-2019 12:29)