SYLLABUS

Name: ***The practice of network administration (MakAu>SI6-I-TPONA19)***
Name in Polish:
Name in English: ***The practice of network administration***

Information on course:

Course offered by department: Faculty of Automatic Control, Electronics and Computer Science
Course for department: Silesian University of Technology

Default type of course examination report:

ZAL

Language:

English

Course homepage:

https://platforma.polsl.pl/rau2/course/view.php?id=1151

Short description:

The main aim of this course is the presentation of practical aspects of security and administration of computer networks. Students will gain practical and theoretical knowledge on the operation of devices, network systems and commonly used protection mechanisms. They will learn about the secure network access and potential threats. This subject is intended primarily for people who want to understand and manage safely their local network and those who want to become network administrators in the future.

Description:

Lecture:
Computer networks are used today in practically all areas of life. Most of the society has access to the Internet and is largely unaware of the risks that arise when connected to the "network".
This course will familiarize students with the practical aspects of securing and preventing unauthorized access to the network. It will allow them to understand the need to use authorization for both wireless and wired networks. The mechanisms used between ISPs and the end customer will be presented. Access security methods and its weaknesses. The issues of monitoring and filtering of network traffic. Administration of appropriate quality of services. Methods of securing and supervising of network infrastructure.
The course will focus mainly on the practical application of the acquired knowledge.
Laboratory:
1. Remote access mechanisms.
2. Virtual Private Networks.
3. Network traffic filtering.
4. Wireless network security.
5. Network data encapsulation.
6. Quality of Service.

Form of classes | Number of contact hours / student workload

Number of ECTS credits: 2
Total hours: 60 (45 contact hours / 15 student's own work hours)
Lecture – 15
Laboratory – 30
Student's own work: studying documentation

Bibliography:

Kizza M. J.: Guide To Computer Network Security, Springer 2020
Alan T. Norman: Computer Hacking Beginners Guide - How to Hack Wireless Network, Basic Security and Penetration Testing, Independently published, 2021

Learning outcomes:

1. Has knowledge of the structure of end-user network infrastructure. (K1A_W16, K1A_W22)
2. Understands the basic principles of secure configuration of network infrastructure.(K1A_W16, K1A_W22)
3. Has knowledge of securing data transmission in a network.(K1A_W16, K1A_W22)
4. Is familiar with the basic types of network threats, methods of their detection and prevention.(K1A_W16, K1A_W22)
5. Knows the mechanisms of network access protection.(K1A_W16, K1A_W22)

Assessment methods and assessment criteria:

Passing the laboratory exercises with an average of at least 50%.

The syllabus has been in effect since the academic year 2021/2022, and its content is not subject to change during the course of the semester.

Course credits in various terms:

<without a specific program>

Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	2	2021/2022-L	