COURSE DESCRIPTION CARD - SYLLABUS

Course name
Local ICT Networks [S1Teleinf1>LST]

Course

Field of study
Teleinformatics

Year/Semester
1/2

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
30

Other (e.g. online)
0

Tutorials
0

Projects/seminars
0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

A student starting this subject should have a basic knowledge of the fundamentals of data communications networks. He should also understand the necessity of expanding his competence. In addition, in terms of social competence, the student must present such attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, respect for other people.

Course objective

The purpose of the course is: 1. to provide students with basic knowledge of local data communication networks. 2. to develop in students the ability to solve basic problems related to the design, commissioning and optimization of local data communications networks. 3. to develop in students the ability to acquire knowledge about new solutions used in local data communication networks. Program content: The lecture will present the most important protocols and mechanisms used in local data communication networks. In the laboratory part, students will learn the principles of configuration of mechanisms and protocols used in local data communication networks.

Course-related learning outcomes

1. Has ordered knowledge of the most important standards, architecture, operation and design of

local ICT networks.
2. Has a structured, mathematical basic knowledge of the operation of algorithms and protocols used in switches.
3. Has ordered knowledge of the most important standards of modern reliable switching protocols.
Skills
1. Can solve typical problems related to the optimal design of a local ICT network
2. Can configure switches to work with various mechanisms and protocols for reliable operation
Social competences
He/She is ready to work in a group

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: assessment in the field of lectures is verified by the evaluation of knowledge demonstrated in the exam. The exam consists of 3 parts: the first part consists of answers to 10 theoretical questions (open) and allows 40% of the points, the second part consists of solving tasks in the field of logical addressing and allows 30% of the points, the third part consists of two open tasks and allows 30% of the exam points. A minimum score of 51% is required to receive a 3.0 price.

Laboratory: the learning outcomes outlined above are verified as follows: Assessment in the field of laboratory exercises is implemented by continuous assessment, in each class (midterms, oral answers) and by the grade obtained on the final test.

Programme content

The subject is devoted to wired local area networks. The topics covered in the course focus on solutions used in Ethernet networks.

Course topics

The topic covered in the lectures:
- architectures of modern local area networks,
- Ethernet as the dominant ICT network technology,
- networks built from switches,
- virtual local area networks,
- ensuring communication between virtual local networks,
- mechanisms for ensuring the reliability of local networks.

The issue addressed during the laboratories:
- basic switch configuration (layers 2 and 3),
- virtual local networks (including MUX and Super VLANs),
- switching between VLANs,
- protocols to ensure the elimination of loops at Layer 2 (STP/RSTP/MSTP),
- link aggregation mechanisms,
- network address translation (NAT),
- port mirroring.

Teaching methods

Lectures: depending on the topic discussed and the interest of the students, the lecture is conducted in one of three forms: traditional lecture (multimedia presentation supplemented by examples given on the blackboard), problem lecture (discussion with the students on the solution of a given problem), or conversational lecture (involving the students in the discussion, controlling the course of the lecture depending on the answers given, etc.).

Laboratory exercises: exercises are conducted in the laboratory of Huawei or Cisco Network Academy. During the course of the exercises, students perform tasks presented by the instructor, which involve the proper connection of devices (switches, routers and computers) and configuration of network devices according to the requirements of the exercise.

Bibliography

PRIMARY LITERATURE:
1.Huawei Certification HCIA-Datacom Training Materials, Huawei Technologies Co., Ltd 2021.
2.Adam Jozefiok: CCNP 350-401 ENCOR. Advanced Cisco network administration, Helion, 2022

SUPPLEMENTARY LITERATURE:
1. Cisco Networking Academy training materials - CCNA R&S course.
2. Huawei Network Academy training materials - HCIA DATACOM course

Breakdown of average student's workload

	Hours	ECTS
Total workload	90	3,00
Classes requiring direct contact with the teacher	49	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	41	1,00