

# SYLLABUS FOR 2023/2024 ENROLMENT

## FORM OF STUDY: FULL-TIME PROGRAMME

### GENERAL INFORMATION

**1. Course** Computer networks

**2. Field of study** Computer Science

**3. Level of acquired education** first-cycle programme

**4. Number of ECTScredits** 3

**5. Number of hours persemester**

semester	lecture	classes	laboratory/foreign language course	project/practical classes	self-study	internship
II	30		30			

**6. Language of instruction:** English

**7. Lecturer** mgr inż. Krzysztof Sankowski

### DETAILED INFORMATION

**8. Preliminary requirements**

1. possesses practical skills in the operation of computer operating systems

2. is able to use an operating system to a basic level

3. has basic knowledge of the operation of computer programs

**9. Course objectives**

C1 To provide practical skills in managing the structure of a local computer network

C2 To develop habits connected with data security and network structure

C3 To convey practical skills related to designing the structure of a local computer network

C4 To develop the habit of solving problems independently and of continuously extending one's own skills

**10. Field-specific learning outcomes in terms of knowledge, skills and social competences**

A student who completed the course:

reference to field-specific learning outcomes

### KNOWLEDGE

EU01 Knows and understands the design guidelines for local area networks

K\_W09

EU02 Knows and understands the characteristics of network protocols

K\_W09

### SKILLS

EU03 Is able to manage local network resources

K\_U11, K\_U14, K\_U20

Is able to create a basic structure of a computer local network

K\_U11, K\_U14, K\_U20

EU04 Is able to use tools to monitor a computer network

K\_U11, K\_U14, K\_U20

EU05 Is able to configure network devices in a basic way

K\_U11, K\_U14, K\_U20

### SOCIAL COMPETENCES

EU05 Is ready for continuous learning due to rapid technology development

K\_K01

EU06 Is ready to take on responsible professional roles

K\_K04

**11. Course content**

**Course delivery method** – lectures/classes/laboratories/practical classes

Lectures:

1. Introduction to computer local area networks,
2. Network terminology, ISO OSI model and TCP/IP model
3. MAC addresses, IPv4, IPv6
4. LAN topologies, network media

5. Basic LAN technologies.
6. Basic LAN protocols.
7. LAN services. Servers used in LANs - discussion of the most important services and servers associated with them
8. Virtual networks VLANs
9. Monitoring network traffic - tools and methods.
10. Methods of securing and monitoring LAN security.
11. Basic protocols of WAN networks
12. Fundamentals of wireless networks.
13. Mobile technologies in computer networks
14. Review of network technology solutions

#### Laboratory:

1. Familiarise with virtualization tools on workstations
2. IPv4 addressing
3. Basic configuration of a Cisco switch
4. STP, RSTP protocol
5. DHCP
6. Virtual networks VLAN, Trunk
7. VTP protocol
8. VPN tunnel
9. Traffic monitoring
10. Port security
11. RIP v1 and v2, EIGRP protocols
12. Static routing
13. Basic configuration of HP/TPLink switch
14. Basic configuration of Mikrotik
15. Summary

#### 12. Teaching tools and methods

1. lecture: use of multimedia presentation, training films
2. laboratory: practical demonstration, specialised computer software

#### 13. Assessment method (component, final)

1. assessment of current preparation for laboratory classes and activity during classes - continuous assessment.
2. credit in the form of a test on lecture topics.

#### 14. Student workload

Form of activity	Number of hours
1. Classes with direct participation of the teacher and office hours	70
2. Student workload	5
sum	75
number of ECTS credits	3

#### 15. Reference books

##### Primary:

- 1) Sieci komputerowe - Biblia/ Barrie Sosinsky ; [tł. Marek Pałczyński, Robert Górczyński, Tomasz Bienkiewicz]., Helion
- 2) Sieci komputerowe : kompendium / Karol Krysiak., Helion
- 3) Akademia sieci Cisco CCNA Exploration. Semestr 1, Podstawy sieci / Mark A. Dye, Rick McDonald, Antoon W. Ruffi ; przekł. z jęz. ang. Stanisław Piech., PWN

##### Secondary:

1) Vademecum teleinformatyka. Tom 1, IDG Poland S.A., 1999
2) Vademecum teleinformatyka. Tom 2, IDG Poland S.A., 2002
3) Vademecum teleinformatyka. Tom 3, IDG Poland S.A., 2004
<b>16. Assessment form - details</b>
<p>Conditions for obtaining course credit:  The lecture ends with a test on the entire material.  Assessment based on the following criteria:  5.0 - 97% or more correct answers  4.5 - 89% - 96% correct answers  4.0 - 79% - 88% of correct answers  3.5 - 69% - 78% of correct answers  3.0 - 51% - 68% of correct answers  2.0 - 50% or less of correct answers  The laboratory ends with an average grade for class activity and completed assignments.</p>
<b>17. Other details concerning the course</b>
1. Direct information about the issues of classes and a program content is provided by the teacher during classes and during office hours.
2. Classes will be held at AB in Biała Podlaska
3. Classes will be held in accordance with the current schedule
4. Office hours will be held in accordance with the applicable schedule