

Schedule

Computer networks

Course code: GEIAL304-B2a

Major: Bachelor's degree in engineering informatics, Bachelor's degree in program design informatics, Bachelor's degree in economic informatics, Bachelor's degree in mechatronics engineering, full-time

Type : compulsory

Instructor, lecturer : Dr. Szilveszter Kovács

Subject manager : Dr. Szilveszter Kovács

Semester : Fall 2025/2026

Week Theories

1. Design of layered network architectures. Concepts (layer, protocol, interface, functional element, etc.). The ISO reference model and additional concepts. Basics for the physical layer
2. The physical layer, physical media and their characteristics. The V.24 (RS232) interface.
3. The media access control sublayer (MAC). MAC concepts used to describe the procedures (traffic, delay, etc.). Static and dynamic channel sharing methods.
4. Practical solutions for the media access sublayer, IEEE 802 standard. 802.3: CSMA/CD.
5. Practical solutions for the media access sublayer, 802.11: WLAN.
6. The data link layer, its services, main functions. Framing procedures. Basic knowledge of error protection, concepts, error detection and correction. Data link protocols.
7. Educational break
8. The network layer, its functions, services and operating modes. The task of traffic control, its examination aspects and main steps. Traffic control methods, traffic control information collection methods. Congestion control.
9. Inter-network cooperation. The repeater, the bridge, the traffic controller.

10. Network architectures commonly used in practice. Internet (IPv4).
11. Network architectures commonly used in practice. Internet (UDP, TCP).
12. Network architectures commonly used in practice. Internet (IPv6).
13. Mid-semester written test.
14. Practice, tools, router configuration examples.

Required reading

- Lecture notes available on Szilveszter Kovács's website (www.iit.uni-miskolc.hu/~szkovacs)

Recommended reading

- Tanenbaum, A.S. : Computer Networks, 2011, ISBN 978-0-13-212695-3
<https://csc-knu.github.io/sys-prog/books/Andrew%20S.%20Tanenbaum%20-%20Computer%20Networks.pdf>

How to close the object:

- Signature, exam

Mid-semester review:

- Mid-semester written test, which falls on the penultimate week of study. The closed-door paper lasts 50 minutes and requires a score of at least 50% to pass.

Conditions for obtaining the signature:

- The condition for obtaining the signature is to write the mid-semester written test at a sufficient level.

Exam format:

- Written and oral.

After the written part has been completed at least satisfactorily, the oral part follows.

Evaluation of the written and oral parts:

0%-50 % :	insufficient
51%-62 % :	sufficient
63%-75 % :	medium
76%-88 % :	good
89%-100 % :	distinguished

The resulting performance is determined by the formula $0.667 \cdot \text{written} + 0.333 \cdot \text{verbal}$, to which a grade is assigned according to the given table.

An insufficient written or insufficient oral exam grade means an insufficient exam grade. Attendance at the oral exam is mandatory. A student who participated in the written part but did not attend the oral exam will receive a “Did not attend” Neptun entry.

The examining instructor has the right – for control purposes – to ask the student to repeat orally some of the questions in the written paper.

General provisions:

According to Section 96 of Volume III of the University of Miskolc Regulations, the use of unauthorized aids (scattering) or the presentation of someone else's work as one's own (plagiarism) during all subject-related assessment events is considered a disciplinary offense, which results in academic sanctions or disciplinary proceedings.

An academic sanction for mid-year examinations is the grading of the examination as unsuccessful. The examination cannot be made up in such cases.

An academic sanction during the examination period is an insufficient grade for the exam, and the student may take a repeat exam at a time designated by the department, before a designated examination committee, in the form of an oral exam.

The department records the fact of cheating and/or plagiarism during the student's period of study, and in the event of a repeated occurrence, it initiates disciplinary proceedings as prescribed in Section 96 of Volume III of the University of Miskolc Regulations.

Miskolc, September 2025.

Dr. Szilveszter Kovacs