Course syllabus

Datorkommunikation
Computer Communication

EITF45, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED C/D
Date of Decision: 2023-04-18

General Information

Main field: Technology.
Compulsory for: D2
Elective Compulsory for: I3
Elective for: BME4, F4, Pi4
Language of instruction: The course will be given in Swedish

Aim

The course teaches the basics of computer communication and networking. Also, there is a project that improves the students' competences in technical writing and oral communication.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- Be able to describe signal- and dataflows for some of the protocol functions in data networks.
- Be able to present the objectives and consequences of using multi-layer protocol models.
- Be able to describe the basic functions of link layer protocols.
- Be able to describe the procedures of connection and session establishment on both the network layer and higher protocol layers.
- Be able to describe the entities of a data network and present the function of each entity and its role as a part of the communication system.

Competences and skills
For a passing grade the student must

• From theory and empirical analysis be able to describe different data transfer issues.
• Be able to use network tools for monitoring the data transfer in a local area network.
• Be able to present own work in the area in both written and oral form

Judgement and approach
For a passing grade the student must

have a basic knowledge about the Internet protocols and systems, and be able to relate to these from the perspective of his/her own use of the Internet.

Contents

The course gives an overview of the basic principles and techniques for modern data communication systems. Internet is used throughout the course as an example of network architecture. Ethernet is used as an example of a local area network. The course describes various network entities that are necessary both for local and global communication between computers. The entities' function and cooperation are described, as well as the functions and protocols needed for global communication across several networks.

In more detail, the course includes the following:

• The basic principles of circuit- and packet-switched networks, both so called Wide Area Networks (WANs) and Local Area Networks (LANs).
• Network architectures.
• The OSI-model for communication and application protocols.
• The functions of different protocol layers.
• Network interfaces.
• Transmission media
• Multiplexing
• Error detection and error control
• Active and passive components for networks
• Internet, both the general architecture and protocols
• Ethernet, IEEE 802.2 and 802.3.
• WLAN IEEE 802.11

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Written examination. Laboratory lessons. Project.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0116. **Name:** Examination.

Credits: 3. **Grading scale:** TH. **Assessment:** Approved written exam.
Code: 0216. **Name:** Project.
Credits: 3. **Grading scale:** UG. **Assessment:** Approved project.
Code: 0316. **Name:** Laboratory Work.
Credits: 1,5. **Grading scale:** UG. **Assessment:** Approved laboratory work.

Admission

Assumed prior knowledge: Basic knowledge in programming.
The number of participants is limited to: No
The course overlaps following course/s: EITF25, ETS055, ETSF05, ETSF15, ETS052, EITG01, EITA60

Reading list

- Maria Kihl & Jens A. Andersson: Datakommunikation och nätverk. Studentlitteratur, 2020, ISBN: 978-91-44-13502-1.
- W. Stallings: Data and Computer Communication. 2013. Alternative literature.

Contact and other information

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Course homepage: http://www.eit.lth.se/kurs/eitf45