



# LTH

FACULTY OF  
ENGINEERING

*Course syllabus*

## Kommunikationssystem Communication Systems

**EITA55, 7,5 credits, G1 (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:** C1

**Language of instruction:** The course will be given in Swedish

### Aim

This course is an introduction to communication systems. It is also aimed at being a practical example of how a course at LTH can be designed and thereby an introduction to the studies on the C program.

### Learning outcomes

*Knowledge and understanding*

For a passing grade the student must

- be able to describe simple signal and data flows for some of the protocol functions that are part of a data network in particular and a telephone networks to some extent
- be able to give a perspicuous description of link handling and setup of connections and sessions between communicating devices on the link level
- be able to give an overview of the creation of connections and sessions between communicating devices on the network and transport level
- be able to describe multilayered protocol models and also the interplay between the different layers

*Competences and skills*

For a passing grade the student must

- be able to use tools for studying data transfer in a local area network

- from theory and practical analysis be able to explain phenomena found in data transfer
- be able to present, orally and in writing, a phenomenon within the subject field

#### *Judgement and approach*

For a passing grade the student must

- be able to value information of a phenomenon within the subject field, and from this information explain the phenomenon in an understandable way

## Contents

The course is an introduction to communication systems. As an example of a communication network Internet, on local, regional, and global level, and Ethernet are used throughout the course. The starting point for the course is the knowledge most of us have regarding data communication - a computer connected to a wall outlet or a network device. Step by step new components, needed for local communication between several computers and later for global communication over networks of different types and with different protocols, are added. More in detail the course covers these areas:

- conversion between analogue information and binary data
- error detection
- error handling
- protocols on different model layers
- addressing methods
- access methods
- path selection algorithms
- Ethernet
- Internet
- public switched telephone network
- mobile telephone networks

## Examination details

**Grading scale:** TH - (U,3,4,5) - (Fail, Three, Four, Five)

**Assessment:** The examination consists of a written exam, laboratory work and a written and oral report which concludes a deep study project. The written exam can give grade 3 or 4, which also is the course grade. If a student performs over average on both the regular written exam and the deep study project, the student can after an extra oral exam be granted grade 5 on the course. Re-examination can be given in the form of a home exam or equivalent.

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:** 0117. **Name:** Examination.

**Credits:** 2,5. **Grading scale:** TH. **Assessment:** The written exam can be graded 3 or 4. **Contents:** Written exam. An extra oral exam on the project is optional for grade 5 on the course if grade 4 is attained on the project and 85% of total points is attained on the written exam.

**Code:** 0217. **Name:** Laboratory Work.

**Credits:** 2,5. **Grading scale:** UG. **Assessment:** Approved assignments. **Contents:** Laboratory work and group assignment.

**Code:** 0317. **Name:** Project.

**Credits:** 2,5. **Grading scale:** TH. **Assessment:** Written report and oral presentation is assessed. The project can be graded 3 or 4. **Contents:** Written and oral presentation on a phenomenon within the subject field.

## Admission

**The number of participants is limited to:** No

**The course overlaps following course/s:** ETS130, ETSF15, EITF25, ETS052, ETS302, EITA60, EITF45

## Reading list

- Maria Kihl, Jens A. Andersson: Datakommunikation och Nätverk (upplaga 2). Studentlitteratur, 2020, ISBN: 9789144135021.
- Reports.

## Contact and other information

**Course coordinator:** William Tärneberg, [william.tarneberg@eit.lth.se](mailto:william.tarneberg@eit.lth.se)

**Course homepage:** <http://www.eit.lth.se/course/eita55>