

# Computer Networking

Programme course

6 credits

Datornät

TNK108

Valid from: 2017 Spring semester

**Determined by**  
Board of Studies for Industrial  
Engineering and Logistics

**Date determined**  
2017-01-25

## Main field of study

Computer Science and Engineering

## Course level

First cycle

## Advancement level

G2X

## Course offered for

- Intelligent Transport Systems and Logistics, Master's Programme
- Communication and Transportation Engineering, M Sc in Engineering

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

Telecommunication systems, Programming, Object-Oriented Programming, or equivalent.

## Intended learning outcomes

The aim is that the students after completed course should be able to:

- Identify the most important components of the Internet
- Describe the principles of client-server and peer-to-peer communication
- Describe the differences in characteristics of different functions and protocols used in the Internet
- Compare and explain application areas of different application and transport protocols
- Relate expressions, components and techniques to the right level of the TCP/IP model
- Describe the function of the network layer and the implementation in TCP/IP
- Describe basic functions and current technologies to accomplish network security
- Explain possibilities and limitations of real time communication via Internet
- Implement basic communication solutions
- Quantitatively model selected functions in a TCP/IP network
- Define and calculate key performance metrics in packet switched networks
- Explain the principals of medium access control

## Course content

The overall aim of the course is to provide knowledge within computer networking, with focus on TCP/IP.

## Teaching and working methods

The course consists of lectures and computer lab assignments.

## Examination

LAB1	Laboratory work	3 credits	U, G
TEN1	Written examination	3 credits	U, 3, 4, 5

## Grades

Four-grade scale, LiU, U, 3, 4, 5

## Other information

*Supplementary courses:*

Data communication and Internet, Mobile communication.

## Department

Institutionen för teknik och naturvetenskap

## Director of Studies or equivalent

Erik Bergfeldt

## Examiner

Evangelos Angelakis

## Education components

Preliminary scheduled hours: 48 h

Recommended self-study hours: 112 h

## Course literature

### Additional literature

#### Books

Kurose, James F., Ross, Keith W., (2013) *Computer networking : a top-down approach*

ISBN: 9780273768968

Boston, [Mass.] ; Pearson Education, cop. 2013

## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).