



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Internetprotokoll

Internet Protocols

ETSF10, 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

Compulsory for: C2

Elective for: D4-ns, E4-ks, MWIR2

Language of instruction: The course will be given in English

Aim

The course aims to provide the students with thorough knowledge, both theoretical and practical, about the most central protocols underpinning the Internet. In particular, a deeper technical understanding is provided for:

- link protocols beyond ethernet
- network layer protocols (IP)
- transport protocols
- routing principles
- application examples
- Data center networks using Software Defined Networks (SDN)

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to account for the underlying principles of some of the most central link protocols,
- be able to account for the underlying principles of some of the most central internet protocols,
- perform analysis and troubleshoot network traffic by interpreting and identifying the observed protocol behaviour from network data,

- formulate a plan for configuring routing and switching equipment

Competences and skills

For a passing grade the student must

- be able to build network structures using SDN in the Linux kernel,
- be able to analyse protocols using analysis tools,
- be able to emulate complex network configurations and pre-study before new services and protocols are implemented live in systems.
- be able to independently acquire knowledge from the course literature, plan their studies and bring relevant questions to the teacher led sessions.

Judgement and approach

For a passing grade the student must

- Be able to locate and extract relevant technical data out of public protocol standards (IETF RFCs and the like).

Contents

The course implies deepened studies of IP network technology. The elements of the course are theoretical as well as practical (primarily in the form of lectures, tutorials and labs). The course assumes basic knowledge of computer communication in general and TCP/IP in particular, where especially different types of link protocols, transport protocols and routing principles are treated.

Examination details

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

Assessment: For passing the course (grades 3-5), students must have approved project reports and final exam. The final grade of the course is determined by the result in the final exam.

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: 0123. **Name:** Project.

Credits: 3,5. **Grading scale:** UG. **Assessment:** Approved project reports. **Contents:** Two projects carried out online.

Code: 0223. **Name:** Exam.

Credits: 4. **Grading scale:** TH. **Assessment:** Approved exam. **Contents:** Written exam.

Admission

Assumed prior knowledge: ETS052/EITF45 Computer Communication or ETS150 Data communication. Basic knowledge in programming.

The number of participants is limited to: No

The course overlaps following course/s: ETS110, ETSE05

Reading list

- Kurds and Ross: Computer Networking, A Top Down Approach 7th ed. Pearson , 2017, ISBN: 978-1-292-15359-9.
- Tanenbaum, Wetherall: Computer networks, 6th ed. Pearson, 2021.

Contact and other information

Course coordinator: Professor Björn Landfeldt , bjorn.landfeldt@eit.lth.se

Course homepage: <http://www.eit.lth.se/course/etsf10>

Further information: In this course there are lectures, exercises, and laboratory projects. Suitable for exchange students with previous computer communications knowledge.