



EP2120 Internetworking 7.5 credits

Internetworking

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for EP2120 valid from Autumn 2010

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

For single course students: 120 credits and documented proficiency in English B or equivalent

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The students will after the course have theoretical knowledge about functionality and principles, as well as practical skills to plan, analyse, implement, and manage Internet based network functions.

Course contents

The course consists of lectures that focus on principles and functionality of current and future Internet architectures, as well as assignments that yield practical skills.

Areas covered:

- What the Internet is and its underlying design principles.
- Underlying link technologies and how they interact with IP. (Ethernet, PPP, bridging, learning, etc)
- What protocols are required to allow internetworking (IP, TCP, UDP, ICMP, etc.)
- Understanding of TCP/IP protocol stack, layering, encapsulation and multiplexing.
- Concepts of bridging, learning, virtual LANs, and how they relate to routing.
- IP Addressing, subnetting and control mechanisms.
- Transport protocols, including UDP and TCP.
- Details of routing and routing protocols (RIP, OSPF, BGP)
- Autoconfiguration and name resolution (BOOTP, DHCP, DNS)
- IP Multicast and multicast routing (IGMP, DVMRP, PIM, etc)
- Network Management, Traffic measurements and analyzing. (eg. SNMP)
- Network security (IPsec, firewalls, encryption)
- IP QoS (Traffic Engineering, RSVP, Intserv, Diffserv, etc)
- Advanced networking (MPLS, VPN, etc)
- IP mobility (Mobile IP)
- Router and Network Architectures
- Standardization work - IETF and RFCs
- IPv6 and how it differs from IPv4.

Course literature

Behrouz A. Forouzan, TCP/IP Protocol Suite, 3rd Edition, 2005, McGraw-Hill, ISBN 0-07-296772-2

James F. Kurose & Keith W. Ross, Computer Networking: A Top-down Approach, 6th Edition, ISBN 978-0-273768968

Examination

- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 3.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

In Kista

Written assignments (ÖVN 1; 4 credits)

For Campus Valhallavägen:

Written examina (TEN 1 ; 3,5 cr)

Laboration (LAB 1 ; 3 cr)

Assignment (UPG1 ; 1 hp)

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.