DD2494 Routing on the Internet and Other Packet Switched Networks 9.0 credits

Routing på Internet och andra paketväxlade nät

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

Establishment

Course syllabus for DD2494 valid from Spring 2012

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Language of instruction

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

Intended learning outcomes

After the course, the student should be able to:

- describe how the global Internet works from a routing perspective
- describe routing algorithms, including Dijkstra and Bellman-Ford
- configure networks using a multitude of routing protocols, including RIP, OSPF, IS-IS, BGP, MPLS and PIM
- program low-level packet lookup and switching
- in detail explain how link-state and distance-vector routing protocols work and be able to assess their differences
- explain in detail how the BGP inter-domain routing protocol works, and in particular how it selects routes
- setup and configure several kinds of networks, including enterprise and operator networks
- explain how intra-domain and inter-domain routing interact, as well as how redistribution and aggregation of addresses works
- explain the network architecture for IP multicast and how IP multicast is distributed within a network
- describe and configure label-switching and traffic engineering (such as MPLS/RSVP) within a routing domain
- explain how the individual routing domains exchange traffic and how traffic is controlled between domains
  using policies
- describe security issues with the current Internet architecture.

Course contents

Overview of current Internet routing protocols. Design of several types of networks: including enterprise and operator networks. Trafic engineering and resource reservation, virtual private networks, multicast.
Programming assignment in C.
Thorough lab course: RIP, OSPF, IS-IS, BGP, MPLS, VPN.

Course literature

The course literature is announced at least 4 weeks before course start at course web page.

Examination

- HEM1 - Assignments, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 3.5 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.

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: http://www.kth.se/csc/student/hederskodex/1.17237?l=en_UK.

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.