DD2491 IP Routing in Internet and Other Complex Networks 7.5 credits

IP-routning på internet och andra sammansatta nät

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

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

Establishment

Course syllabus for DD2491 valid from Autumn 2008

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering,Information Technology,Information and Communication Technology

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,
- explain how the individual routing domains (Autonomous systems - AS exchange traffic and how traffic is controlled between AS using policies,
- in detail describe how path-vector protocols work,
- explain how the BGP inter-domain routing protocol works, and in particular how it selects routes,
- explain how intra-domain and inter-domain routing interact, as well as how redistribution and aggregation works,
- configure routers using inter-domain routing protocols, including BGP,
- configure in practice the interaction between an inter-domain and an intra-domain protocol,
- describe and configure multicast routing between autonomous systems, for example by using MBGP, BGMP, MSDP and PIM-SM,
- describe how tunneling and reservation techniques (such as MPLS/RSVP) can be used for detailed traffic engineering in transit networks,
- explain of the scaling of a network design can be improved using route reflectors, confederations and aggregation.

Course contents

Path vector protocols, BGP4, EBGP, IBGP, BGP-attributes, confederations, router reflectors, communities, route filtering, BGP4 extensions. Interdomain multicast routing and traffic engineering. Extensive lab course.

Lab work: BGP4, traffic engineering.

Course literature

To be announced least 2 weeks before course start at course web page.

Examination

- HEM1 - Assignments, 1.5 credits, grading scale: P, F
- LAB1 - Laboratory Work, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, 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.

Other requirements for final grade

Examination (TEN1; 3 university credits).
Laboratory assignments (LAB1; 3 university credits).
Home assignments (HEM1; 1,5 university credits).

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.