FIK3623 Advanced Topics in Internetworking 7.5 credits

Avancerade ämnen i internetteknik

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

Establishment

Course syllabus for FIK3623 valid from Autumn 2017

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

PhD students

Language of instruction

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

Intended learning outcomes

After completion of the course, the student should be able to:

o based on general principles and study of different protocol standards be able to explain and compare advantages and disadvantages of different protocol designs.
o critically evaluate current as well as new protocols designs in general and network layer protocols in particular, using technical considerations such as scalability, robustness, and manageability as a basis of comparison.
o design, set up and operate a TCP/IP network, and to provide TCP/IP services to end-users, using primarily PC hardware and Unix. You will also be able to describe how interior routing protocols, dynamic address assignment, and the domain name system work, and set up intradomain routing, DNS and DHCP services, and TCP/IP application servers such as mail and web.
o present and discuss current research problems and results within the topics included in the course.
o give examples of and explain social, ethical, and environmental aspects of sustainable development within the area of communication systems.

Course contents

This course focuses on communication protocols for the Internet, and the emphasis is on the generic mechanisms at the layers of the TCP/IP stack. To get a deeper understanding of these mechanisms we evaluate and compare the design of different protocols. To further illustrate these principles and get hands-on experience the course contains a set of lab assignments and a project.
To gain insight into the research withing the field, a set of selected scientific papers will be studied.

Disposition

The course consists of four parts: a series of lectures, laborations, a project assignment, and a state-of-the-art report.

The lectures cover the theoretical background behind the various topics we cover in the course. The labs will give you experience of applying the theoritecal concepts in practice. The purpose of the project assignment is to give you hands-on experience on how to set up a more complex ISP (Internet Service Provider) network. You will work together in groups in a project to learn about and to demonstrate how to design and configure an ISP network, including different services.
Each student will be required to write an individual paper summary (evaluation) of a set of assigned scientific papers.

Course literature

Forskningsartiklar

Examination

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

For final grade, the following is required: passing all labs, passing the project assignment, and an approved state-of-the-art summary based on the assigned scientific papers.

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.