IT-universitetet i Göteborg

CHALMERS | GÖTEBORGS UNIVERSITET

Course Plan
DIT420

Dept. of Computer Science and Engineering

DIT420, Computer Communication, 7.5 ECTS Credits

Basic Level

1. Establishment

The Faculty Board at the IT-university established the course plan at 2006-11-17. This course plan is effective from autumn 2007.

Educational area: Technology/Sciences

2. Location

The course is a part of the Computer Science Bachelor´s programme and an elective course at Göteborg University.

3. Knowledge Requirements

The requirement for the course is to have successfully completed the first year at the Computer Science Bachelor´s programme or equivalent.

4. Learning Outcomes

After successful completion of the course, the students will be able to distinguish the different network layers, their services and the related protocols. In particular, students will be able to:

- Explain and understand the major problems in each of these
- Explain possible solutions and solutions adopted in today's networks (e.g. in the Internet)
- Understand constraints in the currently existing solutions that place obstacles to other options for solving the main problems
- Build and configure a working network and have an understanding of computer configuration and routing issues in networks

Moreover, the students will have gained experience by doing practical work in applying this knowledge in realistic situations.

5. Content

In the study of protocols, we start with application level protocols enabling students to start with more familiar paradigms in the context of applications that we use regularly. Moving to lower layers later on, we have the possibility to gradually uncover network services, their functionality and the ease/difficulty for achieving them.

Topics covered include: networking applications, content distribution, HTTP, SMTP, TCP, UDP, performance and congestion analysis, IP, switching, routing, mobile IP, local area networks, multiple access protocols (IEEE 802.X and others), wireless networks, bridges, physical media, error-detection and correction, and network security.

6. Literature

See separate literature list.

7. Examination

Traditional lectures will be given where basic theory and important concepts are presented in order to complement and support the course textbook.

Lectures are given every week: As a complement to the lectures, consultation sessions will be offered. A selection of optional homework problems are given in order to provide additional insight into the course material as well as to demonstrate the level of understanding required for solving homework assignments. In the consultation sessions, teaching assistants are available to assist students with the optional homework problems. Students are encouraged to attempts these problems prior to these sessions. Students are encouraged to attend all consultation sessions.

Practical assignments are included to help students understand protocols and to practically use network equipment.

The student is evaluated through compulsory homework assignments, Lab work and a final written exam. The final grade is based solely on the final exam.

Passing the home assignments and Lab work are perquisites to passing the final exam.

8. Marks

The course is graded with the following marks: Fail, Pass, Pass with Distinction. The course can also, at the students' request, be marked according to ECTS standards.

9. Evaluation

The course is evaluated through meetings both during and after the course between teachers and student representatives. Further, an anonymous questionnaire can be used to ensure written information. The outcome of the evaluations serves to improve the course by indicating which parts could be added, improved, changed or removed.

10. Other

The course is held in English.