HI103V Data Communications I 7.5 credits

Datakommunikation I

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 HI103V valid from Autumn 2011

Grading scale

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

Education cycle

First cycle

Main field of study

Electrical Engineering,Technology

Specific prerequisites

Completed upper secondary education incl documented proficiency in English.

Language of instruction

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

Intended learning outcomes

After the project course the student should know:

- Protocols, Modulations, Error Detection and Correction
- LAN / MAN / WAN
- OSI, TCP/IP
- ATM / SatCom

Course contents

The course consists of the following topics:

Physical layer data transmission, transmission media, data encodings, modulation, Internet, Standards and the OSI model Introduction to Internet Standards, ISO OSI model, Data link layer flow control, error detection and control; HDLC, other protocols, Multiplexing LAN - Local area networks, Media Access, Topologies, Wireless WAN - Wide area networks Circuit switching, switching, routing; packet switching, congestion control Internetworking Protocols, ARP, ICMP Transport & Session Layers Transport services, Protocols mechanisms, Session layer, Satellite Communications, TCP/IP via Sat. Transponder, Transmission Delays Access types, Modulation Transponder Technology, Low-Orbit Networks, ISDN and ATM ISDN motivation, services, channel structure), ATM cell format, stat. multiplexing Network management and security. Network Management, SNMP, Structure, Privacy, Authentication, Access Control), Security Crypto systems, Algorithms, Secure a-mail, Secure transactions, Smart cards

Disposition

- The course is given in English and is of half time studies. The course is a distance course
- In each course, we also offer four whole day (7h) Saturday seminars / lectures at KTH in Stockholm during each semester. Attendance is voluntary, but highly recommended. Recordings are made available to students with learning disabilities.
- Average study time in each course is typ. 15-22 hrs/week, depending on background and experience.
- A custom-designed student support system (SSS) enables our students keep their contact info updated, obtain course information, submit course assignments and course papers – and receive immediate receipt in writing on all submissions 24/7 from anywhere in the World. SSS was specifically designed to work through most government and corporate firewalls.

Course literature

Kursmaterial kan rekvireras från Högskolans Bokservice på KTH STH, Campus Haninge, telefon: 08-790 48 85; e-post: bokservice@sth.kth.se.

Data & Computer Communications, 9th edition

William Stallings, 2010, 896 pp

Prentice-Hall,

ISBN-10: 0131392050

ISBN-13: 9780131392052

Digital Course Notes Datacom I, 3 CDs, 1.5 GB, L.O. Stromberg

Equipment

You will need:

- A personal computer (PC) running Windows XP/ Vista/ 7
- Internet access
- two working email addresses (do not use free webmail clients, use POP3)
- A scientific pocket calculator

Examination

- ANN1 - Assignment, 1.5 credits, grading scale: P, F
- ANN2 - Assignment, 1.5 credits, grading scale: P, F
- ANN3 - Assignment, 1.5 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.

Examinations are offered three times a year: typically the first Saturday in May, August, and December.

Written examinations are four hours long, and consist of 68 questions; 60 of which are multiple choice (5 choices each) and 8 are in depth questions, including mathematical calculations.

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.