Linnæus University

Course syllabus

Faculty Board of Science and Engineering
School of Computer Science, Physics and Mathematics

2DV406 Datakommunikation, fördjupning, 7,5 högskolepoäng
Data Communication, continuation course, 7.5 credits

Main field of study
Computer Science, Electrical Engineering

Subject Group
Informatics/Computer and Systems Sciences

Level of classification
First Level

Progression
G2F

Date of Ratification
Approved by the Board of the School of Computer Science, Physics and Mathematics 2009-06-23

Revised 2010-08-18. Revision made for English translation of the syllabus and course evaluation.

The course syllabus is valid from spring semester 2011

Prerequisites
60 credits in Computer Science, including 1DV425 Network Security, 7,5 credits or equivalent

Expected learning outcomes
After completed course the student should be able to:

- using established performance measures to analyze the data communication system or elements of the system in terms of efficiency and security
- deploying software by standard methods for various forms of digital encryption and encoding.

Content
The course covers the mathematical background standard methods of encryption, data compression, error control and digital modulation used in modern data communications systems. The following topics are included:

- MATLAB as a tool
- encryption algorithms, DES and RSA
- digital Signatures
- data compression, Huffman coding

- error-checking, linear codes, the Viterbi algorithm
- digital modulation, PSK, QAM, FSK.

Type of Instruction
The course consists of lectures, theoretical exercises and practical laboratory exercises.

Examination
The course is assessed with the grades U,3,4 or 5.
On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

Final grade is based on the results of the written examination and given after completed course. The student has to have passed all practical laboratory exercises to receive the final grade.

Reexamination is offered within semester dates and limited to five occasions.

Course Evaluation
A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

Required Reading and Additional Study Material
Required Reading
Duck, M and Read, R. (2003) *Data Communications and Computer Networks, for Computer Scientists and Engineers,* Pearson Prentice Hall

The Required Reading and Additional Study Material are subject to changes.