



Faculty of Economic Sciences, Communication and IT
Computer Science

Syllabus

Course Approval

The syllabus was approved by the Faculty Board of Economic Sciences, Communication and IT on 25 November 2009, and is valid from the Autumn semester of 2009 at Karlstad University.

Course Code: DVAE06

Research Project in Computer Science, 15 ECTS Credits
(Forskningsprojekt inom Datavetenskap, 15 Swedish credit points)

Degree Level: Master

Progressive Specialisation: A1F (Second cycle, has second-cycle course/s as entry requirements)

Language of Instruction

English

Prerequisites

30 ECTS credits advanced level courses in Computer Science and relevant background for the chosen research area. Upper Secondary English course B or equivalent.

Major Field of Study

DVA (Computer Science)

Learning Outcomes

Having successfully completed this course, a student should be able to

- develop solutions (mechanisms, algorithms, protocols) for real-world computer science problems,
- implement selected algorithms or protocols in a simulator or on a real platform,
- conduct performance evaluation of selected parts of the algorithms or protocols either through simulation or implementation,
- demonstrate knowledge of the area through active participation in (research) projects in computer science,
- read current literature at the level of conference and journal papers in computer science, and
- write technical reports with content suitable for submission to national/international conferences and journals in the area of computer science.

This course should prepare you for starting a thesis or dissertation in computer science.

Content and Form of Instruction

During this course the students will deepen their knowledge and abilities in wireless networks. An important part of system design is to identify the whole width of problems that are involved in the design for a real world implementation. Based on such an analysis, the students will derive a sequence of more detailed sub-problems that can be treated by means of tools and mechanisms that the students are already familiar with. The students will then implement solutions to those problems, evaluate them in a real system or in a simulator and evaluate performance of proposed solutions.

The course includes project work in groups. Each group has to present a written report describing the background, considerations regarding models, precise problem definition, and description of the solution,

results and conclusions. Typically one would expect a report of about 15-20 pages.

Each group will be given a specific problem to be solved covering topics such as:

- Channel Assignment for Mesh Networks
- Gateway Discovery for Mesh Networks
- Peer-to-Peer Overlay over Multihop Networks
- Voice over IP support for Multihop networks
- Opportunistic Protocols for Multihop Networks
- Routing for Multi-Channel Mesh Networks

Reading List

See separate document.

Examination

Both the written report and its oral presentation in a seminar are parts of the examination. The contribution of each group member should be specified in the report. Students who do not pass the first time, must submit a revised version of their report or a completely new report for renewed evaluation.

Grades

One of the grades Distinction (5), Not without distinction (4), Pass (3) or Fail (U) is awarded in the examination of the course.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course assessment is based on student views and experiences as reported in written course evaluations and/or group discussions. Students will be informed of the result of the evaluation and of the measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional Information

Students who enrolled before 1 July 2007 will complete their studies in accordance with the requirements of the earlier admission. Upon completion students may request degree and course certificates to be issued under the current ordinance if they meet its requirements.

The local regulations for studies at the Bachelor's and Master's levels at Karlstad University stipulate the obligations and rights of students and staff.

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