Version 1 (draft)

DAT285B ICT Support for Adaptiveness and Security in the Smart Grid for the International Masters Program in Computer Systems and Networks (MPCSN), 7.5 credits – Course period IV, 2012/2013

Aim
The course gives an introduction of the smart grid and its increased dependence on information and communication technologies (ICT). In Europe and elsewhere, the electrical grid is being transitioned into the "smart grid" in order to increase flexibility and accommodate large scale energy production from renewable sources. This transition involves, among other steps, the installation of new, advanced equipment - for example, the replacement of traditional domestic electrical meters with smart meters - and remote communication with devices - for example, allowing remote access to an unsupervised energy production site.

The course is built around seminars where you learn about the design or development of systems, infrastructure, and applications that are related to the electric power smart grid, with a focus on distributed algorithms and security. You are expected to give some presentations, as well as to participate actively in discussions. As part of the course, you are also expected to complete lab work, i.e. a significant project with relevance to the smart grid. In this way you will also gain experience at the front connecting research and education in the main domain overlapping two of the Areas of Advance, namely ICT and Energy.

Prerequisites
You should have taken at least one course in computer programming. We also expect 7.5hp or equivalent in one of the four areas: computer communication, operating systems, computer security, or distributed systems.

Examiners
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Contents
Part1: Seminars: Teachers and students will give presentation of research papers (work) followed by discussions.
Part2: Course Projects: Each project should be a hands-on approach, but for each project the students are also expected to read scientific papers. These will help the student for the implementation but also show research problems. The list of projects can be found in the course homepage.

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Readings
The course will be based on a series of scientific articles, both to give an introduction to our work and then support you in your respective projects. The list of articles can be found in the course homepage.
Course homepage
http://www.cse.chalmers.se/edu/course/DAT285B/

Examination
Active participation in seminars, including presentations and discussion of new topics. Completed project with written report.

Lecture plan (tentative)
Meetings on Tuesdays will be presentations either by an invited lecturer or a teacher, then followed by a student paper presentation. Meetings on Wednesdays will be focused on projects with a short status update from all groups and then free discussions. Some Wednesdays will also contain student presentations.

Time and Meeting Rooms

date:time	room
03-19: 10-12	3364
03-20: 10-12	8103
04-09: 10-12	3364
04-10: 10-12	3364
04-16: 10-12	3364
04-17: 10-12	3364
04-23: 10-12	3364
04-24: 10-12	3364
04-30: 10-12	3364
05-02: 08-10	3364
05-07: 10-12	8103
05-08: 10-12	3364
05-14: 10-12	3364
05-15: 10-12	3364
05-21: 10-12	8103
05-22: 10-12	3364

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