F3C5801 Electrode Kinetics 9.0 credits

Elektrodkinetik

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 F3C5801 valid from Spring 2012

Grading scale

undefined

Education cycle

Third cycle

Specific prerequisites

KE2110 Applied Electrochemistry, or similar.

Language of instruction

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

Intended learning outcomes

This course aims at giving the participating doctoral students a deeper knowledge in electrode kinetics, including both theories and experimental techniques for kinetic investigations.

After completed course you should be able to:

- Explain the theories behind the electrochemical methods cyclic voltammetry, electrochemical impedance spectroscopy and overpotential decay measurements.

- Describe what information you can get when using these techniques and also their limitations.

- Explain how to use the techniques and how to determine electrochemical parameters from experimental data.

- Evaluate which technique that is most suitable for a certain electrochemical system and when searching for specific parameters.

- Describe the theories behind electro crystallisation.

Course contents

The course is divided in two parts. The first part consists of five seminars covering different topics. Connected to each of the seminar is a home assignment, which should be done and handed in before the seminar takes place. Examples of different themes at seminars:

- Cyclic voltammetry

- Differential electrochemical mass spectroscopy (DEMS)

- Electro crystallisation

- Overpotential decay measurements

- Electrochemical impedance spectroscopy

In the second part of the course an individual literature survey should be done. The survey should be presented in a written report, as well as orally to the other students.

Course literature

Utdelat material.

Course material handed-out by the teachers.

Examination

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.

Other requirements for final grade

Fulfilled home assignments and participation at a majority of the seminars. Approved literature survey report and oral presentation for other students attending the course.

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.