FKD3400 Corrosion Challenges - in Current and Future Technologies 4.5 credits

Korrosionsutmaningar - i nuvarande och framtida teknologier

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for FKD3400 valid from Spring 2016

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

PhD student in chemistry, chemical engineering and materials science

Language of instruction

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

Intended learning outcomes

For whom:

PhD students in corrosion and materials science.

The aim of the course is to provide insights into corrosion issues in applications of metallic materials, critical environmental parameters, failure mechanisms and materials selection choices. It will be run as an introductory lecture plus 1-2 full days of seminars by the participants

Course contents

- Selection of an application from a list provided at the introductory lecture
- Preparation of a report and presentation about the selected application, including:
- An overview description of the entire process/application
- Environment, including critical factors
- How typical environments have changed over the years
- Goals for the technology in the future (e.g. higher temperatures)
- Special measures to mitigate corrosion
- Materials used
- Reasons for materials choices

Typical failure mechanisms, metallography, what to look for

Disposition

- A written report of 3000-6000 words plus figures.
- At least 20 references to scientific papers, which are cited in the text and listed at the end
- An extended summary of 1 page in a provided template, to act as a quick reference document for participants
- A presentation of 1 hour to be given as part of the course
- Active participation in discussion of all other cases (full attendance required).

The course will be run with a minimum of 4 students and a maximum of 8 and the presentations will be on one or two days.

Course literature

Each student to find relevant publications in the open literature

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.

If the course is discontinued, students may request to be examined during the following two academic years.

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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.