F4H5405 Corrosion Science 7.5 credits

Korrosionslära, doktorandkurs

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 F4H5405 valid from Autumn 2013

Grading scale

undefined

Education cycle

Third cycle

Specific prerequisites

The participants are assumed to be graduate students at any university or researchers working in industry with a background in physics, chemistry or materials science. The introductory lecture covers necessary background information.

Language of instruction

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

Intended learning outcomes

The course is intended for graduate students or researchers working in academic or industrial environments with an interest in materials science and engineering.

Course contents

Corrosion is a truly interdisciplinary science and the aim is to discuss the underlying chemistry and physics of the most important forms of metal corrosion. Mechanistic as well as applied aspects will be dealt with.

Disposition

The course includes 24 lecture hours on four consecutive Mondays from 10.15 to 17.00 with a break for lunch and a break for coffee during the afternoon. Most lecturers are part of KorrosionsCentrumTM (a collaboration between KIMAB and KTH) in Stockholm and most competent experts in their respective fields. Lecture room VSem is located on Teknikringen 78A (first floor) and lecture room D4448 on Lindstedtsvägen 5 (fourth floor), both within KTH Campus.

Date/Time	Room	Lecturer	Topic
Sept. 16:			
10.15-12	VSem	C. Leygraf:	Introduction. Repetition of Basic Concepts
13.15-15	VSem	J. Pan:	Thin Oxide Film Formation on Metals
15.15-17	VSem	J. Pan	Passivity
Sept. 23:			
10.15-12	VSem	C. Leygraf	Atmospheric Corrosion
13.15-15	VSem	C. Leygraf	Atmospheric corrosion
15.15-17	VSem	M. Jönsson	Corrosion of light metals
Sept. 30:			
10.15-12	D4448	R. Pettersson:	Pitting/crevice Corrosion
13.15-15	D4448	R. Pettersson:	Stress Corrosion Cracking and Hydrogen Embrittlement
15.15-17	D4448	P. Szakalos:	High temperature corrosion
Oct. 7:			
10.15-12	VSem	D. Thierry:	Microbially Influenced Corrosion

13.15-15	VSem	D. Thierry:	Corrosion Protection by Organic Coatings
15.15-17	VSem	P. Szakalos	High temperature corrosion

Course literature

Selected chapters in "Corrosion Mechanisms in Theory and Practice", 3rd edition, Ed. P. Marcus, CRC Press, Taylor & Francis Group, Boca Raton FL (2012).

The book can be purchased through Kårbokhandeln at KTH , Drottning Kristinas väg 19 (e-mail: peter@karbokhandeln.se)

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.

Written examination. The date of written examination will be decided after general agreement with the participants.

Other requirements for final grade

The course includes 24 lecture hours on four consecutive Mondays from 10.15 to 17.00 with a break for lunch and a break for coffee during the afternoon. Most lecturers are part of KorrosionsCentrumTM (a collaboration between KIMAB and KTH) in Stockholm and most competent experts in their respective fields. Lecture room VSem is located on Teknikringen 78A (first floor) and lecture room D4448 on Lindstedtsvägen 5 (fourth floor), both within KTH Campus.

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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.