



# KD2260 Corrosion and Surface Protection, General Course 6.0 credits

Korrosion och ytskydd, allmän kurs

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 KD2260 valid from Autumn 2007

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Materials Science

## Specific prerequisites

4H1705 General Chemistry for Materials

4H1951 Materials' Thermodynamics.

4H1065 Fundamentals of Materials Science and Engineering

## Language of instruction

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

## Intended learning outcomes

To acquire basic knowledge of thermodynamics and kinetics of corrosion processes with special emphasis on electrochemical aspects, a survey of different forms of corrosion attack, an introduction of methods for corrosion protection and surface treatment and a brief discussion on theoretical and practical issues related to materials selection from a corrosion point of view.

## Course contents

Thermodynamics and kinetics of electrochemical corrosion: the electrical double layer, electrode potential, Nernst's equation, potential-pH diagrams, Butler-Volmer equation, mixed-potential theory, polarisation curves, passivity, immunity. Brief description of various forms of corrosion attack. Corrosion effects in different environments. Principles of different methods of corrosion protection and surface treatment. Materials selection.

## Course literature

Course book: E. Bardal, "Corrosion and Protection" (ISBN 1-85233-758-3), Springer, 2004.

Material handed out during the course.

## Examination

- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F

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

Written exam (TEN1; 3cr).  
Lab work (LAB1; 1cr).

## 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.