IM2652 Surface Physics, Basic Course 6.0 credits

Ytfysik, grundkurs

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 IM2652 valid from Autumn 2008

Grading scale

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

Education cycle

Second cycle

Main field of study

Physics

Language of instruction

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

Intended learning outcomes

The general goal of the course is to give an understanding that and in which way surfaces and nano structures differ from bulk material, within which fields of science and engineering applications surface phenomena play an important role and how surfaces are analysed expirimentally.

After the course the student should be able to:

- judge the importance of surface effects within different areas of science and technology.
- read a scientific article within the field and extract relevant information.
- suggest possible ways to solve a given materials/surface problem, including presenting a hypothesis and choice of analysis methods.
- judge the strengths and limitations of the different methods.

Course contents

The course gives an introduction to the physics and chemistry of surfaces and its importance and relevance for industrial and scientific applications. The course starts from Solid State Physics to give an atomistic description of surfaces and nano structures. A large effort is given to a detailed description of different analysis methods; their basic physical principles and their applicability to different issues with the aim to give a "tool box" for surface analysis including surface microsocopy, electron and X-ray based spectroscopies, ion beam analysis and diffracation methods for surfaces.

Specific prerequisites

Solid State Physics (Kittel or equivalent).

Course literature

Solid Surface, Interfaces and Thin Films, Hans LüthUpplaga: 4 Förlag: Springer År: 0ISBN: 3-540-42331-1

Övrig litteratur:

Vetenskapliga översiktsartiklar inom området där boken behöver stöd.

Examination

- TEN1 - Examination, 6.0 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

"Take-home" exam.

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.