FIM3002 Advanced Topics in Materials Science 6.0 credits

Avancerade ämnen i materialvetenskap

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

Establishment

Course syllabus for FIM3002 valid from Spring 2011

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

Language of instruction

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

Intended learning outcomes

Fundamental understanding of

- energetic electrons interaction with matter
- primary and secondary signals sources and utility of such interactions

- qualitative and quantitative analytical techniques associated with the interaction
- basic physics of interaction
- interrelations between transmission, diffraction, absorption and reflection phenomena

Course contents

The course is based on open literature and below listed textbooks where the course participants are demanded very active participation. The course is conducted in a seminar form, with discussion and analysis of how topographic, morphological, compositional and crystallographic information are deduced using scanning and transmission electron microscopes.

Disposition

The course is planned in form of seminar modules. Students will do seminars during the course and it is compulsory to attend all seminar events during the active period of the course.

Course literature

Selectedresearch articlesandthe following books

Scanning Electron Microscopy and X-Ray Microanalysis. Joseph I. Goldstein etl. 1992

Electron Backscatter Diffraction in Materials Science. Adam J. Schwartz etl. 2000

Electron Energy Loss Spectroscopy Rik Brydson 2006

Electron Crystallography Xiaodong Zou etl. 2011

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.

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.