



FEK3205 Fundamentals of MEMS Fabrication 8.0 credits

Grunder i MEMS- tillverkning

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

Establishment

Course syllabus for FEK3205 valid from Autumn 2012

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

After the completed course the student shall be able to:

- Thoroughly describe different methods of microlithography and identify different effects occurring during the lithographic process.

- Systematically describe principles and implementations of dry etching as well as identify different effect occurring during dry etching.
- Analytically describe different deposition techniques and indentify different effects occurring during depositions on various topographies.
- Report on various wet etching techniques and describe their principles and possible usage.
- Qualitatively describe surface micromachining and stress properties associated with various deposition techniques.
- Describe fundamental principles and processes for packaging of microsystems.
- Identify scaling effects in different physical principles related to microsystems.
- Report on different microreplication processes, alternative material choices and miniaturization examples, and qualitatively compare different microfabrication methods.
- Critically evaluate, compare and appropriately select fabrication methods to realize microstructures.

Course contents

The course consists of self studies of the text book Fundamentals of microfabrication. Chapters 1-5, 9 as well as chapter 8 on packaging shall be studied in depth. Other chapters should be read to get an overview.

Disposition

Self studies of the course literature, oral exam.

Course literature

M. J. Madou, Fundamentals of microfabrication 2ed, ISBN 0849308267.

Equipment

None

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.

Other requirements for final grade

Pass oral examination.

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.