SK2539 Microscale Acoustofluidics 7.5 credits

Akustofluidik vid mikroskala

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

The headmaster at the SCI school has 2021-10-13 decided to establish this syllabus to apply from Autumn 2022, registration number: S-2021-1222.

Grading scale

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

Education cycle

Second cycle

Main field of study

Engineering Physics

Specific prerequisites

Completed degree project at the undergraduate level in technical physics or medical technology.

English B / English 6

Language of instruction

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

Intended learning outcomes

After completing the course, the student must:

- Explain theoretical concepts in acoustofluidics.
- implement the theory to design an acoustofluidic system at micro scale.
- Evaluate different experimental methods in acoustofluidics at micro scale.

Course contents

The course contains the following parts:

- Controlling equations in microfluidics
- Piezoelectricity and acoustic connection
- Ultrasonic resonances in microsystems
- Acoustic radiating forces
- Acoustic streaming
- Particle manipulation and capture
- Different applications in the life sciences

Examination

- LAB1 - Laboratory work, 1.5 credits, grading scale: P, F
- PRO1 - Project, 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.

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.