SK2903 Quantum Technology 7.5 credits

Kvantteknologi

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

Establishment

The head of undergraduate education at the SCI school has decided on 2024-04-09 to establish this course syllabus to apply from autumn 2024, register number: S-2024-0270.

Grading scale

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

Education cycle

Second cycle

Main field of study

Engineering Physics

Specific prerequisites

At least 120 credits in engineering and natural sciences and knowledge of English B or equivalent.

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 should be able to:

- Explain the how measurements in the laboratory are related to calculations in the theory of quantum mechanics.
- Explain quantum entanglement and how it can be used to create physical correlations between observable quantities.
- Demonstrate the ability to acquire data with advanced laboratory instruments in a research environment.
- Demonstrate the ability to analyze experimental data and present the results with publication-quality graphical figures.
- Demonstrate the ability to write a clear, concise and correct scientific text.

Course contents

The course consists of lab modules that will demonstrate different aspects of quantum technology.
Each lab module will be organized by and conducted at different research groups in the Department of Applied Physics.

Examination

- LABQ - Laboratory work, 7.5 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.

If the course is discontinued, students may request to be examined during the following two academic years.

The examiner, in consultation with the KTH Disability Coordinator (Funka), decides on any adapted examination for students with documented permanent impairment. The examiner may grant another examination form for reexamination of single students.

Other requirements for final grade

All laboratory work approved (LAB1 - LAB5; 1.5 credits per lab).

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.