SI1150 Introduction to Quantum Mechanics 6.0 credits

Kvantummekanik, kurs I

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 SI1150 valid from Autumn 2007

Grading scale

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

Education cycle

First cycle

Main field of study

Physics,Technology

Specific prerequisites

Recommended prerequisites: SI1141 (5A1301) or SI1140 (5A1306) Mathematical methods in physics. Some course that gives a basic introductory knowledge about modern physics.

Language of instruction

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

Intended learning outcomes

To give an introduction to quantum mechanics as the basic theoretical tool in modern atomic and subatomic physics.

Course contents

Basics of quantum mechanics. The Schrödinger equation applied to simple potentials. The hydrogen atom. The harmonic oscillator. Operators and postulates. Angular momentum and spin. Matrix representation. Time-independent perturbation calculations. Many-electron systems. The Pauli principle.

Course literature

D.J. Griffiths, Introduction to Quantum Mechanics, chapter 1-7.

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

One written examination (TENA; 6 university credits).

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.