

## KTH SK180N Modern Physics

This e-course covers the theory of relativity, early and modern quantum mechanics, atomic, molecular, laser, solid state, nuclear, particle, astrophysics, and cosmology. The course ends with some of the latest on Nobel Prize in Physics.

### Layout

This is a fully online course (distanskurs), with self-study and web-based examination, at a pace that suits the student. The individual online tests (Quizzes or Q's) should be approached as regular written tests - each 6 hours long, with 10 qualitative questions/quantitative problems each. A good study pace is one Chapter/Quiz per 1-2 weeks.

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- *Study & exams entirely online, no physical presence at any time during course.*
  - *Online access info is emailed to those enrolled by antagning.se at start of each term.*
  - *Course application is exclusively via [www.antagning.se](http://www.antagning.se) – no direct enroll by KTH.*
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### Literature

The course closely follows the textbook "University Physics" by Young and Freedman, available as e-text. Lecture outlines, chapter summaries, practice problems and solutions are available within the on-line examination system. The study material and exams are in English; course administration, teacher communication - in English or Swedish.

### Exams and grading

The course closely follows the YF textbook (Young and Freedman, University Physics, Chs 37-44). The last Chapter (#9) will be on a recent Nobel Prize. 9 Chapters – 9 tests:

- 9 tests of max 10 points each are blocked into three Parts I,II,III (TEN1,2,3 in Ladok); each Part is 3 x 10 points = 30 points maximum.
- A-F scale is in 10% increments: 30-27p=A; 27-24p=B; 24-21p=C; 21-18p=D; 18-15p=E.
- Final grade scale: 90-81p=A; 81-72p=B; 72-63p=C; 63-54p=D; 54-45p=E.

Each test consists of 10 questions/problems from the corresponding chapter (1 test per chapter; e.g. Q1 tests Ch37\_Relativity). You have a maximum of 6 hours for completing the test - so, do prepare and study the course material prior to the test.

You must attempt all 9 tests to complete the entire course. You must score  $\geq 15$ p (50%) in each of the Parts in order to pass them and get the respective credits in LADOK (3 hp per Part). If you have done the three tests and have the total  $< 15$ p in any of the Parts, contact the teacher by email to request a re-exam on a specific chapter (one chapter at a time; no new attempts for improving the pass-grades A-E – ingen plussning). While waiting for a re-exam, you can continue working on the other Parts.