



SH1003 Introductory Astronomy for Engineers 7.5 credits

Introduktion till astronomi för ingenjörer

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 course plan applies from and including VT 2023 according to school head decision: S-2022-1478 Decision date: 2022-10-11

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic eligibility and Physics 1/Physics A

Recommended for students who study technical physics (or have equivalent knowledge in physics) SH2402 instead.

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 students should be able to:

1. explain basic terminology and concepts within all the main areas of the course
2. describe and discuss methods that are used to determine the properties of astronomical objects (e.g. masses and distances)
3. describe and analyse a chosen topic in the area of telescopes/instruments from an engineering perspective. Present the results in a written report and talk.
4. describe topical questions in astronomical research.

Course contents

The course provides an introduction to basic concepts in astronomy and gives a scientific background to engineering in the field. The following topics are covered:

Classical astronomy: the movement of celestial bodies, coordinate systems, eclipses.

Telescopes and instruments: techniques at different wavelengths.

Stars: the sun, stellar evolution, the deaths of stars.

Planets: planets of the solar system, exoplanets.

Galaxies and cosmology: contents and properties of galaxies, Big Bang.

The latest break-throughs in astronomical research.

Examination

- LAB1 - Observing exercises, 1.5 credits, grading scale: P, F
- PRO1 - Project, 2.0 credits, grading scale: P, F
- TEN1 - Exam, 4.0 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.

The course has three examination parts:

1. A group project involving in-depth study of a topic in the area of telescopes/instruments, with emphasis on engineering aspects. The results are to be presented in a written report and a talk. 2hp (P/F), objective 3.
2. Two observing exercises, presented in written reports. 1.5 hp (P/F), objectives 1 and 2.
3. Written exam. 4hp (A-F), objectives 1,2 and 4.

Other requirements for final grade

Pass grades in all examination parts

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.