Faculties of Humanities and Theology

ÄFYD22, Physics 2: Thermodynamics, 7.5 credits

Fysik 2: Termodynamik, 7,5 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2023-06-08 to be valid from 2023-06-08, spring semester 2024.

General Information

The course is a component of the teacher education programme at Lund University.

Language of instruction: Swedish

Main field of studies	*Depth of study relative to the degree requirements*
Physics	G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

The course aims to provide students with fundamental knowledge in thermodynamics.

Knowledge and understanding

On completion of the course, the students shall be able to

1. give an account of basic thermodynamic processes and applications of these,

2. give an account of important physical processes in the atmoshpere with importance for the earth's climate.

Competence and skills

On completion of the course, the students shall be able to

3. plan and carry out simple physical experiments,

4. evaluate and present results of experiments,

5. carry out simple calculations and estimates of magnitude,

6. search for and orally present information from scientific sources as well as from public authorities and companies.

Judgement and approach

On completion of the course, the students shall be able to

7. demonstrate an understanding of the role of physics in society, especially with regards to energy technology,

8. critically discuss the possibilities, limitations and risks of current and future technologies,

9. reflect on progress in terms of knowledge and competence based on the course goals and own goals.

Course content

The course includes a basic overview of areas within physics as well as applications of physics within the energy area.

Energy and thermodynamics are treated in detail to create an understanding of the principles of energy transformation, energy flows and energy use. The course also includes an atmospheric physics-based understanding of mixing and transport in the atmosphere, the radiation balance of the earth, and climate changes.

During the course, connections are made to current issues concerning the role of physics in the energy area and in society.

The course also provides students with an awareness of and use of tools for the collection, processing and presentation of physics data.

Course design

The teaching consists of teaching sessions, group tuition, seminars and supervision in connection with laboratory sessions. Participation in seminars and laboratory sessions is compulsory.

Assessment

Examination takes place in writing in the form of an examination at the end of the course and through written laboratory reports during the course, and through active participation in compulsory components. The compulsory components consist of seminars and submission of individual reflection around own learning.

Students who do not pass a regular assessment will be offered another opportunity for assessment soon thereafter. Course components that are not completed - compulsory components and presentations - can be compensated for following an agreement with the lecturer/s and the director of studies.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

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Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.
Passing the whole course requires approved written examination, approved laboratory sessions and reports, approved participation in seminars, and a submitted individual reflection around the student's own learning.

The grading scale for the written examination is Fail, Pass and Pass with distinction. The grading scale for laboratory sessions, participation in seminars and submitted individual reflection is Fail, Pass.

Passing the whole course with distinction requires approved laboratory sessions and reports, approved participation in seminars, submitted individual reflection around the student's own learning, and the grade of Pass with distinction for the written exam.

The final grade is determined on the basis of the written exam.

Entry requirements

To be admitted to the course, students must have successfully completed 15 credits from ÄFYD11, ÄFYD01 or the equivalent.

Further information

The course may not be included in a degree with ÄFYD02 Physics 2, 15 credits, or FYSA 14 Physics: Introduction to University Physics with Thermodynamics, Climate and Experimental Methodology.

The course coincides with parts of FYSA25, Environmental Physics.

The course is offered at the department of Physics, Lund University.

Subcourses in ÄFYD22, Physics 2: Thermodynamics

Applies from V24

2401 Written Exam, 6,0 hp
Grading scale: Fail, Pass, Pass with distinction
2402 Laboratory Workshops, 1,0 hp
Grading scale: Fail, Pass
2403 Seminars, 0,5 hp
Grading scale: Fail, Pass