COURSE SYLLABUS

Basic Physics 2, 6 Pre-education credits

Grundläggande fysik 2, 6 förutbildningspoäng

Course Code:	TG2F07	**Education Cycle:**	Pre-university level
Confirmed by:	Dean Mar 1, 2016	**Disciplinary domain:**	Natural sciences
Revised by:	Director of Education Jun 28, 2022	**Subject group:**	NA9
Valid From:	Aug 1, 2022	**Specialised in:**	GXX
Version:	4		

Intended Learning Outcomes (ILO)

After a successful course, the student shall

Skills and abilities

- demonstrate skills in using experimental methods and interpret the results in laboratory work
- demonstrate the ability to solve equilibrium problems
- demonstrate the ability to solve motion problems in two dimensions
- demonstrate the ability to apply theories of mechanical vibrations and waves
- demonstrate the ability to perform calculations with electric and magnetic fields
- demonstrate skills within electromagnetic induction and AC power
- demonstrate the ability to apply electromagnetic wave properties
- demonstrate the ability to solve problems related to the atomic electron structure.

Contents

The course contains basic physics with particular importance to the field of technology.
In addition, the course will provide familiarity with the use of mathematical skills and concepts in physics.

The course includes the following elements:

- *Mechanics:* Vectors, torque and conditions of equilibrium.
- *Two-dimensional motion*: Projectile motion and centripetal acceleration.
- *Mechanical vibrations:* Spring and pendulum applications, energy calculations, resonance.
- *Mechanical waves:* Properties of mechanical waves such as standing waves.
- *Sound:* Sounds and characteristics of sound waves.
- *Electrical and magnetic fields:* The capacitor, charged particles in magnetic fields.
- *Electromagnetic induction*: Inductance, self-induction.
- *AC power:* Generators, the transformer, inductor and capacitor in an AC circuit.
- *Electromagnetic waves:* Properties such as interference and diffraction.
- *Wave optics:* Properties such as reflection and refraction.
- *Atomic Physics:* The atomic electron structure.

Type of instruction

Lectures, seminars and laboratory exercises.

The teaching is conducted in English.

Prerequisites

General entry requirements and Physics 1, Matematics 3b/3c or Physics A, Matematics C alternatively completed course Basic Physics 1, 9 credits (or the equivalent).

Examination and grades

The course is graded 5,4,3 or Fail.

Registration of examination:

Name of the Test	Value	Grading
Examination[I]	4 credits	5/4/3/U
Laboratory work and Assignments	2 credits	U/G

[I] Determines the final grade of the course, which is issued only when all course units have been passed.

Course literature

Literature

The literature list for the course will be provided 8 weeks before the course starts.

Literature if the course is given in English:
Title: Impuls Fysik 2
Author: Fraenkel, Gottfridsson, Jonasson
Publisher: Gleerups
ISBN: 978-91-40-67708-2

Literature if the course is given in English:
College Physics, Openstax