



Faculty of Health, Science and Technology
Physics

Syllabus

Physics Preparatory B

Course Code:	FYBX23
Course Title:	Physics Preparatory B <i>Fysik Bas B</i>
Credits:	7.5
Degree Level:	Preparatory
Progressive Specialisation:	()

Major Field of Study:

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2019-02-18, and is valid from the Autumn semester 2019 at Karlstad University.

Prerequisites

General entry requirements and upper secondary level Physics 1 (GY11) or previous enrollment in Physics Preparatory A (7.5 ECTS credits), and upper secondary level Mathematics 3 (GY11), or previous enrollment in Mathematics Preparatory A (7.5 ECTS credits), or equivalent

Learning Outcomes

Upon completion of the course, students should be able to:

- plan and conduct experimental investigations based on a given question and present and interpret the results orally and in writing,
- describe and analyse as well as mathematically process physical problems using adequate quantities, concepts, and models,
- give an account of the concepts power and momentum in two dimensions and use these concepts in calculations,
- give an account of the concepts voltage, current, energy, and effect, and use Ohm's law to perform calculations on series and parallel connections, and perform simple connection exercises, and

- describe electric and magnetic fields, induction and applications.

Content

The course includes the following:

- Mathematical processing of motion and forces in two dimensions.
- Electric charge, current, and voltage. Direct current and Kirchhoff's laws. Electric energy and effect.
- Basic understanding of the concept of field in relation to gravitation, electrostatics, and magnetism.
- Application of the relationship between electric strength of field, potential, and voltage in simple situations. Charged particles moving in electric and magnetic fields. Forces in electric and magnetic fields.
- Induction and alternating current.
- Laboratory work related to the above.

Instruction is in the form of lectures, exercises, and laboratory sessions.

Reading List

See separate document.

Examination

Assessment is based on written exams, tests, hand-in assignments, presentations, and lab reports. Laboratory sessions are mandatory.

Grades

One of the grades Fail (U) or Pass (G) is awarded in the examination of the course (see Dnr C2010/729)

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.

The course corresponds in part to upper secondary level Physics 1 and 2 for natural science and technology programmes.