Faculty of Health, Science and Technology
Physics

Syllabus

Physics Preparatory A

Course Code:	FYBX13
Course Title:	Physics Preparatory A *Fysik Bas A*
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 admission requirements and upper secondary school level Mathematics 2a, 2b, or 2c, or equivalent

Learning Outcomes
Upon completion of the course, students should be able to:
- participate in the planning and conducting of experimental investigations, and report and interpret the results orally and in writing,
- discuss physical quantities, concepts, and models and perform calculations on the basis of these models,
- describe and analyse some everyday phenomena and processes using physical concepts and models,
- give an account of the concepts force and momentum and use the concepts to describe equilibrium and linear motion,
- give an account of the concepts heat, temperature, and pressure and perform simple calculations, and
- give an account of the law of conservation of energy and energy transformation, as well as the meaning

of the concept energy quality and use the knowledge of energy to discuss societal energy and climate issues.

Content
The course includes the following:
- Mechanics: uniform and accelerated motion, free fall. Newton's laws, force, moment, momentum, and impulse. Work, energy, effect, and friction.
- Thermodynamics: The first and second law of thermodynamics. Pressure and temperature. Heat and internal energy. Phase transformation, energy quality, and the ideal gas law.
- 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 Physics 1 for upper secondary level natural science and technology programmes.