



## PHYSICS

### **FYP210 Electrical Measurements Techniques, 7.5 higher education credits**

Ellära med elektrisk mätteknik, 7,5 högskolepoäng

*First Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Department of Physics on 2009-03-01 to be valid from 2009-03-01.

*Field of education:* Science 100%

*Department:* Physics

#### **Position in the educational system**

Advanced course in the main subject physics. The course is given in the Physics program and as a freestanding course at University of Gothenburg.

The course can be part of the following programme: 1) Medical Physicist Programme (NISJU)

*Main field of studies*

Physics

*Specialization*

G1F, First Cycle, has less than 60 credits in first-cycle course/s as entry requirements

#### **Entry requirements**

For admission to the course, completed courses from the first year of the Physics program are required, or that the equivalent knowledge has been acquired elsewhere.

#### **Learning outcomes**

Having passed the course "Electricity and electric measurement techniques" the student is expected to have:

- knowledge of basic physical concepts and methods in electricity and electric measurement techniques.
- ability to describe, explain and predict phenomena in nature, everyday life and society concerning the course content.
- ability to use scientific methods and models for formulating hypotheses based on physics and carry out and interpret measurements, observations and experiments.
- knowledge of basic experimental and measurement techniques and how the measurement data is treated and presented.

### **Course content**

The course treats energy transport from producer to consumer and also the electric power supply system of homes. Laboratory elements give knowledge of simple electric circuits and simple electric measurement systems.

- Electric circuits, components and measuring instruments. Electrical security issues. Direct and alternating current, current and current sources.
- Electric charges and fields, field strength.
- Magnetic fields, induction and inductance. The earth magnetic field and what it mean for the life on earth.
- Data collection by means of computers.
- The magnetosphere and the solar wind. Microwaves and satellites.
- Basic electronics.
- Electrical Measurement Techniques.

### **Form of teaching**

Tests are organised at the end of the course. The tests are normally written and includes both describing assignments and problem-solving. Passing the course requires apart from passed tests also that the laboratory work connected to the course has been presented and approved. For students who have not passed at the regular test and presentation session, additional examination sessions are offered.

*Language of instruction:* Swedish

### **Assessment**

Student who has failed two times in test for course, or part of course, has the right to request another examiner. Application is sent to the Department of physics.

### **Grades**

The grading scale comprises: Fail (U), Pass (G), Pass with Distinction (VG).

Report to examiner no later than one week after start of the course if ECTS grades are requested.

**Course evaluation**

Takes place in cooperation between teachers and students during and after the course.