

Basics of Electrical Engineering for electric vehicles, 7,5 HE credits

Grundläggande elteknik för eldrift, 7,5 hp

Established: 2020-12-17

Established by: Department of Engineering Science

Applies from: H21

Learning outcomes

Knowledge and understanding

The student must, after completing the course, be able to:

- demonstrate knowledge of electrical components used in electric vehicles, for examples resistors, capacitors, inductors, semiconductors, batteries, etc.
- evaluate function a component of an electrical circuit has

Competence and skills

The student must, after completing the course, be able to demonstrate:

- skills in calculating currents, voltages and power in both DC and AC circuits
- skills in performing calculations on magnetic circuits which are relevant to electric operation
- the ability to handle standard electrical measuring instruments
- the ability to give a written account of experiences of laboratory work

Entry requirements

Degree of Bachelor of Science in mechanical engineering or equivalent. Additionally the Bachelor of Science degree must be comprised of a minimum of 5 HE credits in programming and 15 HE credits in mathematics. In addition, verified knowledge of English corresponding to the course English B/English 6 in the Swedish Upper Secondary School or equivalent.

The forms of assessment of student performance

Individual written exam and individual written assignment based on laboratory work.

Course contents

Calculations of both direct- and alternating current-circuits. The work regarding the alternating current circuits includes both 1- and 3-phase, the j-omega method and active and reactive power. The course also introduces basic theory for calculations on magnetic circuits and difference between the quantity's energy and power.

Other regulations

Course grading: U/3/4/5



Course language: The teaching is conducted in English.

General rules pertaining to examination at University West are available at www.hv.se.

If the student has a decision/recommendation on special support due to disability, the examiner has the right to examine the student in a customized examination form.

Cycle

First cycle

Progressive specialization

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

Main field of study

Electrical Engineering