HÖGSKOLAN VÄST

COURSE SYLLABUS

Course code: **IKE100**

Introduction to Electric Vehicle Systems and Components, 5 HE credits

Introduktion till system och komponenter i elfordon, 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 demonstrate:

- knowledge of electrical and electronic equipment in a hybrid or electric vehicle
- knowledge of batteries, ultracapacitors, fuel cells and hybrid systems for electric vehicles
- an understanding of the principles of different electric motor topologies, electronic converters, control systems and energy recovery during braking

Competence and skills

The student must, after completing the course:

- demonstrate 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

The course gives a presentation of the electrical system of an electric vehicle, including the most important components and functions. Existing topologies regarding electric motors, energy conversion, efficient control systems for control and energy recovery during braking and energy storage systems, for example: batteries, ultracapacitors, fuel cells and hybrid systems, will be studied.

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