HÖGSKOLAN VÄST

COURSE SYLLABUS

Course code: **EFE600**

Electric Machines for electric vehicles, 7,5 HE credits

Elmaskiner för elfordon, 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 understanding of the function of basic design parameters and their impact on the synchronous and asynchronous machine
- demonstrate knowledge of trends in research and development in electric machinery for electric vehicles
- describe basic mechanical relationships of rotating systems

Competence and skills

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

- skills in calculations on different magnetic circuits used in electric motors
- the ability to use vector diagrams for analysis of synchronous machines at different stationary load conditions
- the ability to calculate operating quantities of synchronous and asynchronous machines in steady state
- the ability to assimilate research results in the field of electrical machinery

Judgement and approach

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

- argue for the choice of components or parameters

Entry requirements

General entry requirements and approved result from the following course/courses:
IKE100-Introduction to Electric Vehicle Systems and Components and
GEE100-Basics of Electrical Engineering for electric vehicles and
RSE100-Guidelines for safety when working on and in electric vehicles or the equivalent.

The forms of assessment of student performance

Individual written exam and laboratory work, including individual written laboratory report.

Course contents

Basic electrical models for electric machines, electrical and mechanical conditions for the

most common electrical machines, calculations on magnetic circuits, delivered power and torque and the efficiency of the machine.

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
Second cycle

Progressive specialization
A1N - second cycle, has only first-cycle course/s as entry requirements

Main field of study
Mechanical Engineering