



KE2300 Electrochemical Energy Devices 7.5 credits

Elektrokemiska energiomvandlare

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for KE2300 valid from Autumn 2022

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Chemical Science and Engineering, Chemistry and Chemical Engineering

Specific prerequisites

Bachelor of science in chemical engineering, chemistry, engineering physics, mechanical engineering, energy, materials, or equivalent.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The overall aim of the course is to let the participants attain knowledge about operating principles, materials, design, applications and system aspects of electrochemical energy devices, within the categories batteries, fuel cells, electrolyzers and electrochemical solar cells.

For a passing grade the students should be able to:

- Describe the operating principle, figures of merit and characterization methods of electrochemical energy devices. (TENA, PRO1)
- Explain how operating conditions, selection of materials and design affects the properties of the devices. (TENA, PRO1)
- Discuss application areas and system aspects, make choices and evaluate technologies and be able to inform about the technology. (TENA, PRO1)

Course contents

- Batteries
- Fuel cells
- Electrolyzers
- Electrochemical solar cells

For each of these categories the following will be covered: operating principles, materials, design, properties and capabilities, applications and system aspects.

Examination

- PRO1 - Project, 2.5 credits, grading scale: P, F
- TENA - Examination, 5.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.

- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.