MJ2495 Experimental Energy Technology 8.0 credits

Experimentell energiteknik

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

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

Establishment

Course syllabus for MJ2495 valid from Autumn 2012

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Language of instruction

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

Intended learning outcomes

The aim of this course is to provide systematic knowledge of measurement techniques in the energy field, including an introduction to common and advanced methods and tools inenergy-related experiments.Participants received practical experiences in lab and research environments. A general energy technology background is a necessary prerequisite, however since the course starts at a fundamental level no previous experience in measurement techniques is required.

The studenten should be able to accomplish the following tasks upon successful completion of this course:

- develop an experimental plan
- create a basic structure in a log book
- create a basic structure of an experimental report
- evaluate the pros and cons of using experimental analogy and similarity studies
- calculate and evaluate the uncertainties in the experimental results
- present experimental results with uncertainties
- conduct risk assessment of experimental work, including risks, likelihood and consequences
- construct an Risk Management Plan
- critically evaluate, select, and implement appropriate measurement equipment (temperature, pressure, flowrate, etc.)

Course contents

The course is comprised of lectures, two laboratory exercises, and two home assignments. The lectures cover: Temperature Measurements, Pressure Measurements, Flow Measurements, Data Evaluation and Errors and Risk Analysis. The laboratory exercises are devoted to temperature and pressure measurements. Practical experience of these methods and others are provided through group work coupled to ongoing research projects.The course ends with a written exam.

Specific prerequisites

B.Sc. in Engineering with prerequisite in MJ1112 Thermodynamics 9 ECTS, MJ1401 Heat Transfer 6 ECTS and SG1220 Fluid Mechanics 6 ECTS or a combination of these subjects of at least 15 ECTS.

Documented proficiency in english B or equivalent.

Examination

- INL1 - Assignments, 0.5 credits, grading scale: P, F

- LAB1 - Lab 1, 0.5 credits, grading scale: P, F
- LAB2 - Lab 2, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Exam, 2.0 credits, grading scale: A, B, C, D, E, FX, 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.

- INL1 - Assignments, 0.5 credits, grade scale: P, F
- LAB1 - Laboratory Work, 0.5 credits, grade scale: P, F
- TEN1 - Examination, 2.0 credits, grade scale: A, B, C, D, E, FX, F
- LAB2 - Laboratory Work, 5 credits, grade scale: A, B, C, D, E, FX, F

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.