



MJ2482 Measurement Techniques in Aeromechanics 6.0 credits

Mätteknik i aeromekanik

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 MJ2482 valid from Autumn 2019

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

After completing the course with a passing grade the student should be able to:

1. Develop an experiment plan
2. Present measurement result with measurement uncertainty
3. Describe measurement principles of measurement of temperature, pressure and flow and be able to choose appropriate experimental equipment for the measurement purpose
4. Describe measurement principles of unsteady measurements of pressure and vibrations and be able to choose appropriate experimental equipment for the measurement purpose
5. Condense time-resolved measurements and extract relevant results

Course contents

The course intends to give an overview of measuring techniques that are used in the field of aeromechanics and the research area with regard to new and future methods of measurement.

In several engineering projects, more or less complex tests are carried out. To set up experiment concepts, plan instrumentation, carry out measurements and evaluate measurement results are crucial stages in that. To be able to guarantee high quality of measurement results, the planner must know advantages and disadvantages of different technologies to be able to choose the most suited the technology within budgetary limits.

Disposition

The first part of the course focuses on static measurements and is directed towards communication of systematic knowledge to be able to plan measurements in a reliable way. The other part of the course focuses on unstable measurements and its experimental methods, in particular measurements that are applied in aeromechanics in turbomachines, such as unsteady pressure measuring and vibration measuring.

Specific prerequisites

Fluid mechanics, thermodynamics, engineering mathematics, BSc level

Only for TAETM

Course literature

Egen litteratur, urval av vetenskapliga artiklar

Figliola, R., Beasley, D., 2011 "Theory and Design of Mechanical Measurements", Fifth edition, John Wiley & Sons, Inc., USA

Examination

- INL1 - Assignment1, 0.5 credits, grading scale: P, F
- INL2 - Assignment2, 0.5 credits, grading scale: P, F
- LAB1 - Laboratory exercise 1, 0.5 credits, grading scale: P, F
- LAB2 - Laboratory exercise 2, 0.5 credits, grading scale: P, F
- TEN1 - Written exam 1, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN2 - Written exam 2, 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.

Obsolete examination items will be assessed using supplementary tasks or complementary assignments during three years of time after the last course offering. Thereafter, the examination items according to the current official course syllabus, must be carried out.

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.