



SD2160 Sound and Vibration, Project Course 8.0 credits

Ljud- och vibrationsprojekt

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 SD2160 valid from Autumn 2007

Grading scale

P, 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 the course, the participant should be able to

- explain and communicate how sound and vibrations affect man and material
- identify and use international standards for measurement and analysis within the sound and vibration field
- identify, explain and communicate laws and regulations within the fields of sound and vibrations in society
- explain and communicate sound quality methods applied to products
- explain and communicate methods to measure and analyze sound and vibration from products like machinery
- identify, explain and communicate methods to make diagnosis of sound and vibration sources
- apply scale rules when investigating sources of sound and vibration
- explain and communicate how sound and vibrations arise in different machinery as electric motors, combustion engines, oil-hydraulic systems, flow machinery and so on
- explain, communicate and apply methods for vibration testing of products and part systems

Further on, starting from problems, usually from industry or society, be able to

- discern and formulate a project task
- make a project plan
- carry out an information retrieval within the actual area
- review, and compile information within the area
- orally and in writing, present the work with demands on content, structure and language

Course contents

a) Analysis of the sound and vibration characteristics of products. Sound and vibration generation in various machines and processes and methods to reduce this. Standards. Legal aspects of noise control. Acoustic planning.

Invited guest-lectures give actual information from different areas within the field of sound and vibration.

b) In addition, the course is based on the activities of the participants and the information given at seminars, industrial visits and written reports.

These activities can be divided into the following parts:

- Computer-based information retrieval.
- Practice in analysis and evaluation of technical and scientific reports and presentation of the compiled information.
- Visits to the industry in order to get information about: Industrial research and development. Insight into cooperation and communication between research and technical development. Insight into the professional role of the sound and vibration engineer.

Specific prerequisites

Basic courses in Mathematics, Mechanics, Fluid Mechanics, MATLAB. Furthermore, the course requires a basic course in Sound and Vibrations corresponding to SD1115 or SD1120.

Preferable also a course in Signal Analysis.

Cooperation with LI1011 Information Retrieval.

Course literature

Compendium, Handbooks, Journal Papers and Reports.

Examination

- SEM1 - Project, 8.0 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.

Other requirements for final grade

Passed written exams, attendance to lectures, seminars and industrial visits. Assessment of project work incl. oral and written presentations (SEM1 8 university credits).

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.