CHALMERS

Active Noise Control

VTA130 Master's programme
Quarter 5: 2018
Completed course gives 7.5 ECTS

Dear student,

The **main goal** of the course is provides both the theoretical principles behind active control of sound and vibration and the required basic knowledge in signal processing.

The ***learning outcomes*** as found at the student portal are as follows:
After completion of this course, the student should be able to

- Understand, explain and apply the physics behind typical active noise control solutions for air-borne sound and structure borne sound
- Understand, explain and apply the signal processing theory required for the application of active noise control solutions
- Design, implement and evaluate filter functions on a DSP
- Define performance requirements as goal function for an active noise control system
- Formulate and solve the problem of noise control by means of active control
- Model and simulate the implementation of an active control system
- Design, implement an active noise control system for a real life problem.
- Create the experimental data base needed for the design of an active noise control system
- Evaluate the active noise control system experimentally
- Carry out the different steps of the work inside a team with distributed tasks
- Communicate results colleagues and teachers in appropriate form

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Organisation:
The course comprises the following learning activities: lectures and exercises in the form of experimental work

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Course literature

Nelson, P. A., Elliot, S. J., "Active Control of Sound", Academic Press (1992). In addition lecture notes are used which can be found on the web page on the course page on www.ta.chalmers.se.

Examination

Examination is based on an oral exam and a written report about the project work. Grading from oral exam and written report of the project work is evenly weighted for the final grade.
For reaching grade 3, the students should be able to carry out the project work in a proper methodological way. He/She should also be able to master the main contents of the lectures in an appropriate way.
For reaching grade 5, the students should be able to carry out the project work in an excellent methodological way. He/She should also be able to show a deep understanding of the contents of the lectures.

Laboratory work: Implementation of an ANC system in a ventilation duct. The work is strongly linked to the lectures. The laboratory work is mandatory and the final report of the work is a part of the examination. The work starts study week 3 with an introduction (**21th of September 8:00)**. This lecture is compulsory. There are no fixed times for the laboratory work given in the main schedule of the Masters Programme. More information is given during the course.

Schedule: The schedule for the lectures can be found on the schedule of the MSc programme.