

Human Response to Sound and Vibration (HRSV)

Master's Program
Quarter 3: 2023
Completed course gives 7.5 credits

Organization: The schedule for the various lectures is shown to the right. Lab work is compulsory.

Lectures: On-Campus lectures will be given on human response to sound and vibration, annoyance, sound quality, statistics, and experimental planning. (See schedule).

Lecturer:
Prof. Roland Sottek, roland.sottek@chalmers.se

Course management: Roland Sottek, Wolfgang Kropp

Lab work management: Leon Müller

Exam: Grades depend on the quality of the submitted, compulsory, individually written home tasks (for home assignments part 1 and part 3 work in groups of three including a contribution report, part 2 is an online quiz) and presentations from 10-17 March. Final feedback to the home assignments will be given via zoom in week 12. The home exams should be submitted to Roland Sottek, roland.sottek@chalmers.se, Leon Müller, leon.mueller@chalmers.se and NN

Deadline home assignments: 03-10 February 23:59 (part 1), 15 February 23:59 (part 2) and 16 February – 03 March 23:59 (part 3).

Course literature: Papers published continuously online.

Books:

- H. Fastl, E. Zwicker: Psychoacoustics. Facts and Models, Springer Verlag Berlin Heidelberg, 2006.
- B. C. J. Moore: An Introduction to the Psychology of Hearing, Academic Press, 1997.
- J. Blauert: Spatial Hearing, MIT Press, 1997.

The books by Moore, and Zwicker & Fastl will be available for lending by the Division for use during the course. You are not allowed to print copyrighted material.

Lab work: Lab work is compulsory. Lab tasks will not be repeated later. The lab tasks serve as a preparation for the home exams.

Gothenburg, 02 January 2023

Roland Sottek and Wolfgang Kropp

Tentative schedule

(additional times for consultation and statistic lectures are not yet included)

Date	Time	Activity	Room	Contents
27.01.	09.00-11.45	Lecture 1	Dep.	General Introduction into Human Response to Sound and Vibration, Overview of Acoustics and Introduction into Signal Processing
	13.15-15.00	Lab 1	Dep.	Basic Analyses and Techniques (incl. Setup of Hard- and Software)
30.01.	09.00-11.45	Lecture 2	Dep.	Physiology of Human Hearing, Loudness Perception and Modeling
	13.15-15.00	Lab 2	Dep.	Advanced Analyses and Techniques, Basics of Data Acquisition
31.01.	09.00-11.45	Lecture 3	Dep.	Introduction into Soundscapes, Environmental Noise
	13.15-15.00	Lab 3	Dep.	Sound Walks in Groups
01.02.	09.00-11.45	Lecture 4	Dep.	Further Psychoacoustic Parameters, Psychoacoustic Calculation Models
	13.15-15.00	Lab 4	Dep.	Analysis of Sound Walks, Preparation of Home Assignment 1, Individual Questions and Answers
09.02.	09.00-11.45	Lecture 5	Dep.	Perception and Modeling of Modulated Signals, Pattern Recognition Introduction into Binaural Hearing and Binaural Technology
	13.15-15.00	Lab 5	Dep.	Project Work (Acoustic and Psychoacoustic Analyses)
10.02.	09.00-11.45	Lecture 6	Dep.	Introduction into Jury Testing
	13.15-15.00	Lab 6	Dep.	Jury Testing
13.02.	09.00-11.45	Lecture 7	Dep.	Introduction into Product Sound Quality, Metric Development
	13.15-15.00	Lab 7	Dep.	Sound Quality Evaluation and Metric Development
14.02.	09.00-11.45	Lecture 8	Dep.	Extra Lecture Slot
	13.15-15.00	Lab 8	Dep.	Preparation of Home Assignment 3, Individual Questions and Answers