



# DT2213 Musical Communication and Music Technology 7.5 credits

Musikalisk kommunikation och musikteknologi

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

## Establishment

Course syllabus for DT2213 valid from Autumn 2009

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Computer Science and Engineering

## Specific prerequisites

Single course students: 90 university credits including 45 university credits in Mathematics or Information Technology. English B, or equivalent.

## Language of instruction

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

## Intended learning outcomes

The overall goal is obtain a thorough scientific understanding of the basic principles for how music is communicated from a musician to a listener and be able to apply this knowledge in music applications, including new ways of musical interactions.

You should after the course be able to

- identify and describe the major principles for musical communication including structural, emotional and gestural expression,
- describe and analyze the control aspect of musical instruments regarding limitations, expressive freedom and parameter mapping,
- critically read a scientific paper in music communication and extract useful information,
- use software tools for symbolic music (MIDI) and audio manipulation,
- implement a pd (pure-data) patch for basic sound synthesis and manipulation of musical control data in real-time.

## Course contents

The communication chain, the role of the musician versus computer-generated performances.

Marking musical structure: tempo, phrasing, harmonic and melodic tension, repetitive patterns and grooves, articulation, accents, ensemble timing.

Emotional expression: The composition's inherent expression, acoustical cues and mapping to emotions, synthesis, automatic recognition, comparisons with other modalities (facial expressions, gestures, speech), cultural versus innate codes.

Allusions to motion: Inferences from dance and other human motion patterns, final ritardando, hand gestures.

The musical context: Concert, background, film music.

The MIDI standard: coding, controls, Standard MIDI files, General MIDI.

Synthesis: synthesis models, sampling, physical modeling sound libraries.

Computer tools: pd (pure data), Director Musices, Digital Audio Workstations, notation editors, samplers.

This course will not cover topics that are already dealt with in EN2100 Auditory Perception and DT1410 Audio Technology. The overlap is also small with DT2212 Music Acoustics, which deals mainly with the physical and acoustical properties of instruments.

## Course literature

Selection of scientific papers mainly summaries of each area. For sale at the department.

## Examination

- PRO1 - Project, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.5 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.

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

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: [http://www.kth.se/csc/student/hederskodex/1.17237?l=en\\_UK](http://www.kth.se/csc/student/hederskodex/1.17237?l=en_UK).

## Other requirements for final grade

Passing of a written exam (4,5 hp), a group project (1,5 hp) and a laboratory schedule (1,5 hp).

## 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.