



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 Spring 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

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.

The student 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 commercial software tools (sequencers, synthesizers) for symbolic music (MIDI) 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, mapping of emotions, synthesis, automatic recognition, comparisons with other types of expression (facial, gesture, 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.

Technical aspects: Synchronization, randomness. The MIDI standard: coding, controls, Standard MIDI files, General MIDI. Synthesis: Sample players, sound libraries, sampling, looping and physical modeling.

Computer tools: pd (pure data), Director Musices, sound editors, sequencers, notation editors, samplers, audio analysis, gesture analysis.

This course will not cover topics that are already dealt with in 2E1390/EN2100 Auditory Perception and 2F1410/DT1410 Audio Technology. The overlap is also small with 2F1212/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.

Other requirements for final grade

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