DT2213 Musical Communication and Music Technology 7.5 credits

Musikalisk kommunikation och musikteknologi

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

On 2019-10-15, the Head of School of EECS has decided to establish this official course syllabus to apply from the spring semester 2020 (registration number J-2019-2179).

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Language of instruction

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

Intended learning outcomes

Having passed the course, the student should be able to

- identify and explain principles of musical communication including structure, emotional expression and gestures in order to compare different music products
- select and use software to process music in symbolic form, in audio format, or through synthesis in order to influence the communication
- describe and analyse control aspects of musical instruments with respect to limitations, expressive freedom, and parameter mapping in order to modify these aspects in new prototypes
- apply results from scientific literature within musical communication in practice
- use programming languages for music in order to implement basic sound synthesis and process control data in real time

in order to

- receive a solid scientific understanding of basic principles of how music is communicated from musicians to listeners
- be able to apply this in new music applications, including new ways of musical interaction.

Course contents

The chain of communication, the role of the musician vis-à-vis computer-generated music.

Labeling of musical structure: speed, phrasing, harmonic and melodic tension, repetitive patterns, articulation, accents, ensemble timing.

Emotion expression: composition's inherent expression, acoustic parameters and their mapping to emotion expression, synthesis, automatic recognition, comparison to other modalities (facial expressions, gestures, speech), cultural and embedded codes.

Connections to movement: dance, different gestures, end ritardando, and phrasing.

The musical context: concert, background, film music.

The MIDI standard: encoding, control options, Standard MIDI Files, General MIDI.

Synthesis; synthesis methods, sampling, physical models, sound libraries.

Computer tools: pd (pure-data), Director Musices, Digital Audio Workstations, musical notation software, sampling instruments.

Specific prerequisites

At least two of the following courses completed:

- DD1318 Programming technique and technical calculations
- DT1175 Sound

- DH1622 Human-Computer Interaction, introductory course
- DM1135 Signal Processing for media and communication technology or DT1130 Spectral transforms

or equivalent

Examination

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

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.