

Sound Technology

Ljudteknik
6 credits

Programme course

TNM103

Valid from: 2022 Spring semester

| | | |
|--|----------------------------------|-----------------------------------|
| Determined by | Main field of study | |
| Board of Studies for Computer Science and Media Technology | Media Technology and Engineering | |
| Date determined | Course level | Progressive specialisation |
| 2021-09-01 | Second cycle | A1N |
| Revised by | Disciplinary domain | |
| | Technology | |
| Revision date | Subject group | |
| | Media Production | |
| Offered first time | Offered for the last time | |
| Spring semester 2018 | | |
| Department | Replaced by | |
| Institutionen för teknik och naturvetenskap | | |

Specific information

The course may not be included in the degree together with TNM054

Course offered for

- Master of Science in Media Technology and Engineering

Prerequisites

Signals and Systems, Transforms Theory, Sound Physics or similar. Basic programming.

Intended learning outcomes

Analogue and digital sound technology are today of importance for many different media productions, from computer games and immersive media production via user interfaces and UX to sound and music editing. This course aims to give the students in-depth knowledge of methods for sound technology, sound effects and signal processing, as well as analysis and synthesis of sound and waveforms. After completing the course, the student will be able to apply knowledge about the design of analogue and digital signal processing applications for professional audio, music production, film, games and virtual environments, as well as visualization, and forensic work.

Course content

Introduction to digital audio, audio and music processing. Overview of signal processing and audio effects technologies. The adjustment of the dynamic content of an audio signal such as compression and expansion. Filter and leveling of signals, different filter applications, and different filter types. Digital delay lines as well as analogue options for simulation of room acoustics and echo. Digital and analogue audio effects (such as wha-wha, phaser, flanger). Phase vocoding for pitch and temporal changes of a signal. Additive and subtractive synthesis, as well as analogue and digital synthesis methods. Amplitud and frequency modulation of signals.

Teaching and working methods

The course comprises lectures, lectures/seminars given by the students, as well as programming-oriented and practical audio-technical labs. A written exam in the form of a homework exam, which is carried out for a limited amount of time, that explains in writing how a specific signal processing task could be solved.

Examination

| | | | |
|------|-----------------|-----------|------------|
| LAB1 | Laboratory work | 3 credits | U, G |
| HEM1 | Home-assignment | 3 credits | U, 3, 4, 5 |

Grades

Four-grade scale, LiU, U, 3, 4, 5

Other information

About teaching and examination language

The teaching language is presented in the Overview tab for each course. The examination language relates to the teaching language as follows:

- If teaching language is “Swedish”, the course as a whole could be given in Swedish, or partly in English. Examination language is Swedish, but parts of the examination can be in English.
- If teaching language is “English”, the course as a whole is taught in English. Examination language is English.
- If teaching language is “Swedish/English”, the course as a whole will be taught in English if students without prior knowledge of the Swedish language participate. Examination language is Swedish or English depending on teaching language.

Other

The course is conducted in a manner where both men's and women's experience and knowledge are made visible and developed.

The planning and implementation of a course should correspond to the course syllabus. The course evaluation should therefore be conducted with the course syllabus as a starting point.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.