GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Foundations of Musical Acoustics and Sonology (A005289)

Course size *(nominal values; actual values may depend on programme)*

Credits 5.0 **Study time 150 h**

Course offerings in academic year 2024-2025

null

Lecturers in academic year 2024-2025

Maes, Pieter-Jan	LW17	lecturer-in-charge

Offered in the following programmes in 2024-2025	**crdts**	**offering**
null		

Teaching languages

English, Dutch

Keywords

Musical acoustics, sonology, analog and digital techniques for audio measurement, synthesis, and playback, contemporary music, digital innovation in the cultural and creative sector

Position of the course

This course gives students insight into the acoustic and sonologic principles of music with a strong emphasis on the practical use and applications.

Contents

A tentative overview of the course:
- Sound waves (sources, propagation, and parameters)
- Pure and complex tones, musical instruments, additive and subtractive synthesis
- Room acoustics
- Musical scales, temperament and tuning
- Analog and digital audio
- Spectrum analysis of audio signals
- Audio playback systems (multichannel, 3D audio, etc.)
- Microphones, recording techniques
- The role of acoustics in contemporary music (aesthetics)
- Interaction of humans with their acoustic environment
- Futurism, acoustic ecology, soundscape, sonic branding

The course contains a part of theoretical lectures and a part of practical seminars, which are mutually reinforcing.

Initial competences

No prerequisite knowledge required

Final competences

1 Gain insights into the foundation of acoustics and sonology in music and music science.
2 Gain knowledge and competences related to the analysis, synthesis, recording and playback of musical audio.
3 Gain insights into the role and influence of acoustics in classical and contemporary music.
4 Gain insights into acoustics, music and digital innovation.

Conditions for credit contract

Access to this course unit via a credit contract is unrestricted: the student takes into consideration the conditions mentioned in 'Starting Competences'

Conditions for exam contract

Access to this course unit via an exam contract is unrestricted

Teaching methods

Seminar, Excursion, Lecture

Extra information on the teaching methods

Theoretical lectures, practical seminars (PC-exercises, reading and presentation exercises, group discussions, etc.)

Study material

None

References

- van der Wey, C. W. (1996). *Professionele audiotechnieken*.
- Leman, M. (2002). *De klankwereld van muziek*. Leuven/Leusden: ACCO.
- Loy, G. (2006). *Musimathics: The Mathematical Foundations of Music*. Cambridge, MA: MIT Press.
- Everest, F. A. & Pohlmann, K. C. (2009). *Master handbook of acoustics*, 5th edition. New York: McGraw-Hill/TAB Electronics.

Course content-related study coaching

Weekly feedback on the practical exercises, for further questions the students can contact the teacher by appointment or via e-mail.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment

Examination methods in case of periodic assessment during the second examination period

Written assessment

Examination methods in case of permanent assessment

Skills test, Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Extra information on the examination methods

The non-period bound evaluation is related to the various tasks given in the practical seminars thoughout the semester. For this evaluation, no reexamination is possible.
The period bound evaluation is a written exam. This exam consists of questions related to the theoretical lectures and the practical seminars.

Calculation of the examination mark

Non-period bound evaluation: 30%
Period bound evaluation: 70%

Facilities for Working Students

- Possible exemption from educational activities, after consultation.
- Feedback can be given by email, or during an appointment during office hours.