Institution: Lithuanian Academy of Music and Theatre
Name of the subject: Spatial Audio for Music Composition and Studio Production
ECTS credits: 5
Lecturer: Assoc. Prof. Mantautas Krukauskas (mantautas.krukauskas@lmta.lt)
Hours: Contact hours – 32 h., self-study hours – 48 h.
Distance lectures: Tuesdays 18.10-19.45 (first lecture on 27 September)
Assessment (exam): Creative work 60 % and test 40 %

Spatial Audio for Music Composition and Studio Production is an advanced level study subject in the field of electronic music composition and studio production, cantered on providing fundamental knowledge and skills in spatial audio. Module provides knowledge on development of surround sound, spatialisation techniques, development of ambisonics, introduces students to the basic skills of recording, encoding, mixing, transforming and reproducing spatial audio in multi-loudspeaker arrays by using multi-platform easily available software tools. Subject includes practical creative spatial audio production and mixing tasks.

Prerequisites to the module are: common understanding in music technology, including sound recording, routing and reproduction, operating digital audio workstations; proficient knowledge in electronic music composition and/or studio production; basic understanding in visual audio programming or coding would be an advantage.

Aim of this subject is to provide fundamental knowledge and skills necessary to record, encode, transform and reproduce spatial audio in the context of music composition and audio production.

Themes:

1. Introduction to spatial audio. Terminology and contexts. (2 academic hours, lecture)
2. Sound, music and space. Perception and psychoacoustics of sonic space. (2 academic hours, lecture)
3. Developments in spatial music and spatial audio, historical contexts (2 academic hours, lecture)
4. Working with spatial audio: basic approaches, technology and tools (2 academic hours, lecture)
5. Basic panning and surround, binaural sound. Methods, standards and tools (2 academic hours, lecture)
6. Soundfield synthesis, ambisonics (2 academic hours, lecture)
7. Wavefield synthesis and other techniques (2 academic hours, lecture)
8. Recording spatial audio, technology, formats and approaches (2 academic hours, lecture)
9. Encoding spatial audio, approaches and techniques (2 academic hours, lecture)
10. Transforming spatial sound field, approaches, techniques and tools (2 academic hours, lecture)
11. Spatial sound reproduction and decoding. Speaker arrays (2 academic hours, lecture)
12. Creative strategies, principles and techniques of spatial sound panning, mixing and transformation (2 academic hours, lecture)

Creative work with spatial sound, developing and implementing electroacoustic spatial sound mixes (8 academic hours, seminars/practical work)

Books:

Rumsey F. Spatial audio. Focal press, 2012.
Zotter F., Frank M. Ambisonics. Springer, 2019.
Paterson J., Lee H. 3D Audio. Routledge, 2021.