

**Institution:** Lithuanian Academy of Music and Theatre

**Name of the subject:** Spatial Audio for Music Composition and Studio Production

**ECTS credits:** 5

**Lecturers:** Assoc. Prof. Mantautas Krukauskas ([mantautas.krukauskas@lmta.lt](mailto:mantautas.krukauskas@lmta.lt)), Dr. Theodore Lee Parker

**Hours:** Contact hours – 32 h. (lecturers, seminars), 4 h. (consultations, examination), self-study hours – 97 h.

**Assessment (exam):** Creative work 60 % and test 40 %

**Distance lectures:** Thursdays, 10:50-12:25, 2023. **First lecture – on 14<sup>th</sup> of September.**

**Registration:** until 8 of September [HERE](#) and in your high school.

### Course description:

Spatial Audio for Music Composition and Studio Production is an advanced level course is designed for students specializing in electronic music composition and studio production, with a focus on spatial audio. The course covers the fundamentals and practical aspects of spatial audio, including the history and development of surround sound and ambisonics, spatialization techniques, and multi-loudspeaker arrays. Through hands-on experiences, students will become adept at recording, encoding, mixing, transforming, and reproducing spatial audio using readily available multi-platform software tools. The course also emphasizes creative spatial audio production and mixing tasks.

### Prerequisites:

1. Basic understanding of music technology, including sound recording, routing, and reproduction.
2. Proficiency in operating digital audio workstations.
3. Knowledge in electronic music composition and/or studio production.
4. Basic understanding of visual audio programming or coding (advantageous but not required).

### Course objectives:

The aim of this course is to equip students with the fundamental knowledge and skills necessary to record, encode, transform, and reproduce spatial audio within the context of music composition and studio production.

### Themes:

- Introduction to Spatial Audio: Terminology and Contexts (2 academic hours, lecture)
- Sound, Music, and Space: Perception and Psychoacoustics of Sonic Space (2 academic hours, lecture)
- Historical Developments in Spatial Music and Spatial Audio (2 academic hours, lecture)
- Working with Spatial Audio: Fundamental Approaches, Technology, and Tools (2 academic hours, lecture)
- Basic Panning, Surround, Binaural Sound: Methods, Standards, and Tools (2 academic hours, lecture)
- Soundfield Synthesis and Ambisonics (2 academic hours, lecture)
- Wavefield Synthesis, Advanced and Mixed Techniques (2 academic hours, lecture)
- Recording Spatial Audio: Technologies, Formats, and Approaches (2 academic hours, lecture)
- Encoding Spatial Audio: Approaches and Techniques (2 academic hours, lecture)
- Transforming Spatial Sound Fields: Approaches, Techniques, and Tools (2 academic hours, lecture)
- Spatial Sound Reproduction and Decoding: Speaker Arrays (2 academic hours, lecture)
- Creative Strategies: Principles and Techniques of Spatial Sound Panning, Mixing, and Transformation (2 academic hours, lecture)

### Practical Component:

- Creative Work with Spatial Sound: Developing and Implementing Electroacoustic Spatial Audio Mixes (8 academic hours, seminars/practical work)

### Reading:

Rumsey F. Spatial audio. Focal press, 2012.

Zotter F., Frank M. Ambisonics. Springer, 2019.

Paterson J., Lee H. 3D Audio. Routledge, 2021.