

Liverpool John Moores University

Title: Sound Technology Theory
Status: Definitive
Code: **4521STE** (124033)
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering
Teaching School/Faculty: Liverpool Institute for Performing Arts

Team	Leader
Karl Jones	

Academic Level: FHEQ4
Credit Value: 20
Total Delivered Hours: 72
Total Learning Hours: 200
Private Study: 128

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	40
Workshop	30

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	Portfolio	Spreadsheet Portfolio Quantities, Room Acoustics, Measurement	50	
Exam	Exam	Exam	50	2

Aims

To provide the student with a clear understanding of the essential theory associated with audio and acoustic engineering principles. This is an essential theoretical foundation to much of the material covered in other modules throughout the course.

Learning Outcomes

After completing the module the student should be able to:

- 1 Identify and apply the physical principles and metrics associated with basic acoustic, psychoacoustic, electronic and audio systems.
- 2 Perform calculations using the common mathematical quantities relevant to audio systems using both calculators and spreadsheet tools.
- 3 Recall the basic design and operational principles of commonly used audio recording and processing devices.
- 4 Demonstrate the methods and presentation of room acoustic calculations.
- 5 Demonstrate the methods and the presentation of audio measurement parameters.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Portfolio	2	4	5
Exam	1	2	3

Outline Syllabus

The Physics of Sound
Sound Levels and Decibels
Human Hearing and Psychoacoustics
Comb Filter Theory
Electrical Basics (DC)
Electromagnetic Behaviour (AC)
Microphones and Loudspeakers
Passive Audio Circuits (Attenuators, Filters)
Digital Audio Theory (Sampling, ADC, Coding, DAC)
Stereo Theory
Metering (Level, Loudness)
Analogue Recording (Vinyl, Tape)
Room Acoustics
Studio Design
Active Audio Circuits (Amplifiers, Filters)
Practical Audio Circuits
Audio Measurement & Analysis

Learning Activities

This module will be delivered using the following teaching and learning strategies:

Lectures to introduce key concepts and theories

Workshops to apply these concepts using spreadsheet modelling

Workshops to demonstrate practical use of test and measurement equipment

Individual study in line with guidance and direction from tutors, including formative worksheet examples

Notes

Peter Philipson is the Module Leader (p.philipson@lipa.ac.uk)