

## Liverpool John Moores University

Title: Audio Restoration and Digital Enhancement  
Status: Definitive  
Code: **6204AMP** (121895)  
Version Start Date: 01-08-2021  
  
Owning School/Faculty: Engineering  
Teaching School/Faculty: Engineering

Team	Leader
Colin Robinson	Y

**Academic Level:** FHEQ6      **Credit Value:** 20      **Total Delivered Hours:** 44  
**Total Learning Hours:** 200      **Private Study:** 156

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	18
Practical	18
Tutorial	8

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Report on methodologies	30	
Practice	AS2	Analyse, restore and Reconstruct/transfer archive audio material to a modern format	70	

### Aims

*To enable students to apply modern digital techniques for the analysis reconstruction / transfer / identification and enhancement of a variety of audio signals and artefacts.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Select appropriate tools to restore audio material from various legacy formats
- 2 Analyse and reconstruct an audio product to appropriate industry standards
- 3 Analyse and enhance a sound file to identify the obscured content
- 4 Apply knowledge and techniques to suggest/develop improvements for an engineered product

## Learning Outcomes of Assessments

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

Report on methodologies	4		
enhance & isolation techniques	3	2	1

## Outline Syllabus

*Audio recording and acoustic analysis in historical context*  
*Signal Analysis and Fourier Transform*  
*Digital Archiving of materials*  
*The audio chain and optimisation*  
*Identification of Format Capabilities and Limitations*  
*Format transfer techniques*  
*Comparisons of Modern and Historical Recording and Reproduction formats*  
*Application of Digital standards & formats, sample rates and quality*  
*Noise analysis and reduction systems*  
*Spectral analysis and acoustic enhancement*  
*Waveform analysis and reconstruction*  
*Application of acoustic analysis to enhance environment, reproduction and products*  
*Modern noise suppression techniques*  
*Audio restoration and reconstruction processes*  
*Assessment, management and reporting of audio analysis*  
*Analysis of live-captured and electronically-generated content*  
*Maintenance of levels to relevant technical acceptance standards*  
*Application of Audio restoration processes in Industry*

## Learning Activities

Lectures, Practical sessions and demonstrations including student work groups

## Notes

This module is designed to give students an opportunity to apply their audio skills to broader less traditional industry applications and as an introduction to the application of the disciplines taught throughout their degree to the new opportunities available in

the fast growing industries of Audio Archiving, Audio Restoration and Bespoke Sound design for Industrial Applications.