

## Liverpool John Moores University

Title: SOUND REINFORCEMENT 2  
Status: Definitive  
Code: **5513STE** (118569)  
Version Start Date: 01-08-2019

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

Team	Leader
Karl Jones	Y

**Academic Level:** FHEQ5  
**Credit Value:** 12  
**Total Delivered Hours:** 36  
**Total Learning Hours:** 120  
**Private Study:** 84

### Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	16
Workshop	20

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	TECH PORT	TECHNICAL PORTFOLIO AND GROUP SEMINAR	50	
Practice	PRACTICAL	PRACTICAL PROJECT	50	

### Aims

*This module aims to build on and develop the skills and techniques learned in Sound Reinforcement 1. Whilst that module is based around small to medium sized portable sound reinforcement, and largely in a popular music context, this module addresses larger sound reinforcement systems in both fixed installations and portable situations. It also introduces the learner to the specific requirements of sound-reinforcement and sound design in theatrical and other non-musical contexts. More*

*advanced technologies are introduced, such as the use of RF systems for microphones and monitoring, active speaker management and measurement systems, digital mixing consoles and the use of sophisticated DSP based system processing.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Design, rig, optimize and operate a medium to large sound reinforcement system appropriate to a given brief in a theatrical context and including both live elements and recorded cues
- 2 Demonstrate a detailed knowledge of the function and use of digital speaker management and measurement systems, RF mic and monitor systems
- 3 Identify and solve faults in complex sound reinforcement systems taking into account relevant safety requirements including power distribution
- 4 Apply the forms and conventions of theatrical sound design to process and product
- 5 Critically evaluate their process and product including both technical and non-technical influences

## **Learning Outcomes of Assessments**

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

TECH PORTFOLIO & GROUP SEM	1	4	5
PRACTICAL PROJECT	1	2	3

## **Outline Syllabus**

### *Advanced Speaker Systems*

*Multiple speaker arrays – distributed approaches to reinforcement; active speaker management systems – crossover points and responses, compression and protection; rigging and flying techniques for loudspeakers; time alignment and image shift*

### *Advanced System Design*

*Working with mix matrixes; analogue and digital live sound consoles; DSP based system processing – advantages and disadvantages, key components, software building blocks, building Media Matrix profiles, remote monitoring; power distribution – single and multi-phase, distribution and conditioning units, avoiding earth loops*

### *RF Technology*

*Basic principle of RF transmission and reception; aerial types and uses; frequency management and the JFMG; inter-modulation and how to avoid it; RF distribution and head amplification; working with radio microphones – capsule types and characteristics, mic placement strategies and techniques with head-worn microphones; working with In-Ear Monitoring Systems.*

### *Theatre Sound Design*

*Similarities and differences in theatrical reinforcement requirements; role of the*

*sound designer; working from scripts; building an FX plot and sound cues, practical effects; integrating live music with theatre; roles and jobs in theatre; protocols for working in theatre*

*System Measurement and Tuning*

*Principles of measurement – pink noise and spectrum analysis vs. TEF/MLSSA principles; using software and hardware tools for measurement, including an introduction to SMAART-Live.*

## **Learning Activities**

This module is delivered in both lecture and workshop formats. Lectures will be used to cover underlying theory and broad concepts, whilst workshop sessions will put this theory in to practice by working with the relevant sound reinforcement systems.

## **Notes**

Students will be working on a number of practical assessment tasks during this module. Some of these will be as part of a small team, and others will be as individuals. Towards the end of this module, students will undertake a practical, task-based exam. This will require them to apply the knowledge and skills that they have learnt to a specific situation or scenario. Because of this, learners will need to make time outside of taught classes to practise with the equipment and to develop the relevant skills and methodologies.

In addition it is expected that learners will utilise the indicated study time to extend and cement their theoretical understanding through self-study based around the recommended core texts and additionally supplied references.