

Liverpool John Moores University

Title: VIDEO AND AUDIO ENGINEERING
Status: Definitive
Code: **6011ENG** (106216)
Version Start Date: 01-08-2011

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

Team	Leader
Tony Moore	Y

Academic Level: FHEQ6 **Credit Value:** 24.00 **Total Delivered Hours:** 81.00
Total Learning Hours: 240 **Private Study:** 159

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	48.000
Practical	6.000
Tutorial	24.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	80.0	3.00
Essay	AS2	Video Coursework	10.0	
Essay	AS4	Audio Coursework	5.0	
Essay	AS3	Audio Laboratory	5.0	

Aims

To provide an explanation of acoustics and digital audio techniques. To introduce the student to modern video compression systems, digital video processing techniques and the principles of chromaticity.

Learning Outcomes

After completing the module the student should be able to:

- 1 Perform calculations on video standards and room acoustics
- 2 Provide a rationale for the component sub-systems in MPEG
- 3 Explain the basis of certain video phenomena
- 4 Calculate the chromaticity properties of a light source
- 5 Explain the processing involved in video recording and effects
- 6 Perform calculations of sound levels
- 7 Control the acoustics of a room
- 8 Identify the properties of digital audio signals, interfaces and processes
- 9 Evaluate the deployment of sound sub-systems

Learning Outcomes of Assessments

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

Exam	1	2	3	5	6	8
Video coursework	1	4				
Audio coursework	7					
Audio laboratory	9					

Outline Syllabus

Video signals: scanning, resolution, bandwidth, timing; high definition systems

Consideration of the TV signal in 2 and 3 dimensions: application.

Chromaticity

Digital video: parallel and serial standards.

Video compression techniques and application to MPEG; MPEG signal structure

Processing for video recording and video effects.

The nature of sound: wavelength, sound pressure and intensity.

Sound in rooms and buildings: standing waves, reverberation time, transmission, directivity.

Microphone types, loudspeaker design principles.

Dynamic range: noise reduction systems such as Dolby A and B.

Digital audio principles, interfaces (with emphasis on AES/EBU), recording principles.

The exploitation of masking in digital bit-rate systems such as Minidisc.

Learning Activities

By a combination of lectures, tutorials and laboratories

References

Course Material	Book
Author	Watkinson, J
Publishing Year	2000
Title	The Art of Digital Video
Subtitle	
Edition	3rd
Publisher	Focal Press
ISBN	

Course Material	Book
Author	Pohlman, K.
Publishing Year	1995
Title	Principles of Digital Audio
Subtitle	
Edition	3rd
Publisher	McGraw-Hill
ISBN	

Notes

This module deals with more advanced concepts in acoustics, audio signal processing, video signal properties, compression and handling.