Liverpool John Moores University

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Title:	Broadcast Standards and Systems
Status:	Definitive
Code:	**5001AMP** (120135)
Version Start Date:	01-08-2019

Owning School/Faculty: Electronics and Electrical Engineering
Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
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Academic Level:	FHEQ5	**Credit Value:**	24	**Total Delivered Hours:**	74
Total Learning Hours:	240	**Private Study:**	166		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	42
Practical	6
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Timed Unseen Exam	50	2
Practice	AS2	Signal measurements	50	

Aims

To explain the nature and composition of primarily baseband broadcast quality signals; to describe the operation of (and standards required for) broadcast equipment to recognised professional industry practice.

Learning Outcomes

After completing the module the student should be able to:

1. Analyse the nature of broadcast signals
2. Explain the principles of studio and portable equipment and evaluate trade-offs in their selection and operation
3. Identify and measure parameters of typical examples of broadcast quality signals

Learning Outcomes of Assessments

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

Timed Unseen Exam   1   2

Signal Measurements   3

Outline Syllabus

Audio signals, human hearing, transduction and parameters
Alignment and permitted maximum levels, decibels, international measurement scaling
Phantom power arrangements, patching and connector systems
Peak vs loudness monitoring, headroom standards, dynamic range compression

Digital audio sampling frequencies, aliasing and filtering, quantisation levels & noise
Inter- and Intra-studio Tx systems (e.g. AES/EBU)
Audio file formats, data rate, bit rate reduction & acceptable contribution delivery standards
Maximum Coding Level and digital headroom

Relationship between video and audio signals
Scanning, resolution, effect of Interlace, flicker, frame rates, shutter speeds, gamma
Blanking, active line, visible lines, synchronisation & framestores
Colour vision and standards, luma & chroma signals
Component and composite signals, terminology, standard test signals, calibration
Basic lighting techniques.

Digital video signals, (e.g. Rec 601/709), Sampling formats (e.g. 4:2:2) and harmonised sampling frequency, quantisation levels & noise
DVE, captions, studio & OB layout and operations
Inter- and Intra-studio Tx (e.g. HD-SDI), signal paths: studio to consumer, storage, play-out
Image file formats, data rate, bit rate reduction, concept of asymmetric encoding/decoding & acceptable contribution delivery standards
Nomenclatures, EBU emission recommendations, acquisition & storage

Learning Activities

Attend all lectures, tutorial and practical sessions.
Engage with on-line learning materials via Blackboard.
Research and produce the output for the practical assignment

Notes

This module provides an introduction to broadcast operational standards and typical arrangements for equipment and signals required in professional media organisations.