Module Proforma

Approved, 2022.03

Summary Information

Module Code	7115AMP
Formal Module Title	Advanced Audio Forensics
Owning School	Engineering
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Colin Robinson	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
Anthony McKenna	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	20
Practical	25
Tutorial	5

Module Offering(s)

Offering Code	Location	Start Month	Duration
JAN-CTY	CTY	January	12 Weeks
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To provide students with the theory, processes and techniques in the emerging field of Audio ForensicsTo equip the student with knowledge and understanding to critically analyse, select and apply appropriate techniques to transcode, authenticate, enhance, interpret and report on forensic media investigationsTo foster an environment that encourages self-reliance, professionalism and promotes continuous learning self-development and a culture that addresses the potential impact of various forms of bias can have on the interpretation of results within the evidence chain

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Recognise, specify, setup and calibrate common audio capture and interrogation equipment
MLO2	Critically appraise audio materials obtained from a variety of common digital and analogue sources
MLO3	Use advanced techniques to investigate, process, interpret and reconstruct forensic audio materials using a variety of tools to recognised standards
MLO4	Explain and report the procedures completed in a professional and accessible manner

Module Content

Outline Syllabus
Advanced measurement scales tools and techniquesAdvanced audio visualisation tools charts and techniquesStrategies and limitations of surveillance techniquesAdvanced spectrographic audio analysis and interpretationForensic application of digital audio processingAdvanced forensic audio tools and proceduresEmerging digital audio technologiesBinaural trilateration and doppler calculationsFast Fourier TransformsRecognizing audio forgery using advanced critical listening proceduresImplications of frequency maskingHEX and EXIF interrogation of audioOver processing implicationsAnalogue audio systems and transfer techniquesAnalogue transcodingPreparation of documentation for such casesForensic audio reporting and evidence for cross examination

Module Overview

This module builds on the Basic introductory knowledge accumulated in previous modules and will provide students with a thorough understanding of the advanced practical theory, skills, processes and procedures pertinent to their current /potential role as Audio Forensic Specialist. The focus will be on many common real-life situations although there may be scope to further specialise in specific areas of the field. The Syllabus involves applying the Audio Forensic process chain appropriately with a keen awareness of the risks and implications associated with the standards and processes required for each procedure. The training is completed to a level of competence where the student is able to defend materials in court.

Additional Information

This module will provide students with a thorough understanding of the advanced practical theory, skills, processes and procedures pertinent to their current /potential role as Audio Forensic Specialist. The focus will be on many common real-life situations although there may be scope to further specialise in specific areas of the field.The Syllabus involves applying the Audio Forensic process chain appropriately with a keen awareness of the risks and implications associated with the standards and processes required for each procedure:1. Capture/ Duplication/Handling of files from original format in professional manner2. Transfer of authenticated files to digital analysis software3. Manipulation and Interpretation of Audio files in Analysis Software for forensic investigation purposes4. Documentation and Reporting completed to a level of competence where the student is able to defend materials in court

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Practice	Practical	30	0	MLO2, MLO1
Report	Report	70	0	MLO3, MLO4, MLO2, MLO1