RAT-1100: SOUND RECORDING AND DESIGN

Cuyahoga Community College

Viewing: RAT-1100 : Sound Recording and Design
Board of Trustees:
May 2023

Academic Term:
Fall 2023

Subject Code
RAT - Recording Arts & Technology

Course Number:
1100

Title:
Sound Recording and Design

Catalog Description:
Introduction to theory of sound and recording process for media production. Topics include principles of sound and hearing, audio terminology, recording equipment operation, storage mediums and recording techniques for location and studio applications. For students interested in audio for video, television, film, and digital media arts.

Credit Hour(s):
3

Lecture Hour(s):
1
Lab Hour(s):
4

Requisites

Prerequisite and Corequisite
Departmental approval.

Outcomes

Course Outcome(s):
Perform professional quality recording of voice/dialogue in projects such as narrative film, documentary film, commercials, audio books, podcasts, voiceovers, interviews, etc.

Essential Learning Outcome Mapping:
Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):
a. Differentiate between types, specifications, and characteristics of microphones.
b. Identify when a particular microphone may provide an advantage in a specific situation.
c. Recognize the challenges involved with capturing dialogue while keeping microphones invisible to the camera.
d. Demonstrate appropriate placement and techniques of handheld microphones.
e. Demonstrate setup and use a shotgun mic with a boom pole to capture location dialogue.
f. Use proper wireless "lav" microphone technique to capture location dialogue.
g. Demonstrate how to connect one or more microphones to a field recorder with and without a field mixer.
h. Recognize the importance of capturing "room tone" during dialogue recording.
i. Explain the ADR (Automated Dialogue Replacement) process.

Course Outcome(s):
Complete professional quality recording of sound effects.

Essential Learning Outcome Mapping:
Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):
 a. Demonstrate mono and stereo recording techniques with and without a field mixer.
 b. Demonstrate technique required to record ambience.
 c. Recognize the difference between reality and expectation when designing sound effects.
 d. Apply signal processing to sound effect recordings to produce desired quality
 e. Synthesize new sound effects by manipulating and layering together multiple sound effect recordings.

Course Outcome(s):
Edit dialogue recordings for content and for audio quality.

Essential Learning Outcome Mapping:
Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):
 a. Evaluate the quality and intelligibility of dialogue recordings.
 b. Discuss common issues found in 'rough edits' of dialogue produced during video edit.
 c. Use the editing tools found in DAW applications to produce smooth, inaudible transitions between adjacent audio clips.
 d. Use 'room tone' recordings to fill gaps between audio clips and cover up unwanted noises.
 e. Apply signal processing to dialogue recordings to enhance intelligibility of dialogue.

Course Outcome(s):
Perform post production processes to produce a finished audio track for a project.

Essential Learning Outcome Mapping:
Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

Objective(s):
 a. Select sound effects that help create a desired impact or feeling that fits a visual scene.
 b. Record sound effects that help create a desired impact or feeling that fits a visual scene.
 c. Design sound effects that help create a desired impact or feeling that fits a visual scene.
 d. Create submix stems for dialogue, sound effects and music.
 e. Demonstrate mixing technique for project final delivery using volume automation and signal processing.
 f. Export digital video reference that includes audio mix of project.

Methods of Evaluation:
 a. Participation and discussion
 b. Written assignments
 c. Lab assignments and projects
 d. Lab practicals
 e. Exams covering assigned reading and lecture material.

Course Content Outline:
a. Characteristics of sound
  i. How the ear reacts to sound
  ii. Fundamental waveform characteristics
  iii. Sound spectrum by octave band
  iv. Comparing frequencies to musical instrument ranges
  v. Fletcher-Munson curve
  vi. Masking
  vii. Basic audio terminology
b. Digital recording principles
  i. Fundamental digital audio principles
  ii. Digital recording process
  iii. Digital recorder types
  iv. DAW Software Operation
  v. Documentation/Logging
c. Audio signal flow and operation
  i. Equipment setup
  ii. Signal routing
  iii. Audio signal flow
  iv. Cable characteristics
  v. Audio connectors
  vi. Field mixer operation
d. Voice recording and editing
  i. Voice recording
  ii. Voice editing
  iii. Music and Sound Effects (SFX) Production libraries
  iv. Music and SFX clearance
e. Microphone types, characteristics and uses
  i. Dynamic microphones
  ii. Condenser microphones
  iii. Microphone polar patterns
  iv. Microphone frequency response
  v. Self Noise and Signal-to-Noise Ratio
  vi. Wireless microphone systems
  vii. Stereo microphone placement
  viii. Multi-microphone considerations
f. Location recording techniques
  i. Location recording terminology
  ii. Location recording equipment
  iii. Pre-production planning
  iv. Portable mixer operation
  v. Handheld microphone techniques
  vi. Podium microphone techniques
  vii. Boom and fish pole technique
  viii. Sound effect (SFX) recording
  ix. Stereo microphone placement and techniques
g. Audio Post Production
  i. Post-production terminology
  ii. Post Production personnel
  iii. Post-production process
  iv. Project organization and workflow

  v. Automated dialog replacement (ADR)
  vi. Ambience recording
  vii. Foley and Sound Design
  viii. Dialog editing
  ix. Music editing
  x. Pre-dub mixing / Stems
  xi. Re-Recording Mix
  xii. Layback
  xiii. Delivery formats
  xiv. Aesthetic considerations

Resources

Viers, Ric. *The Location Sound Bible: How to Record Professional Dialogue for Film and TV*. 12th ed. CA: Michael Wiese Productions, 2012.

Viers, Ric. *The Sound Effects Bible: How to Create and Record Hollywood Style Sound Effects*. CA: Michael Wiese Productions, 2008.

Rose, Jay. *Producing Great Sound for Film and Video: Expert Tips from Preproduction to Final Mix*. NY: Routledge, 2014.

Purcell, John. *Dialogue Editing for Motion Pictures: A Guide to the Invisible Art* . 2nd ed. MA: Focal Press, 2013.

Fisher, Jeffery P. *Soundtrack Success: A Digital Storyteller's Guide to Audio Post-Production*. 1st Ed. CA: Alfred Music, 2011.

Sonnenschein, David. *Sound Design: The Expressive Power of Music, Voice and Sound Effects in Cinema*. 1st Ed. CA: Michael Wiese Productions, 2001.

Resources Other

a. The Indie Filmmaker's Guide to Recording Audio. Michael Maher. April 18, 2017. https://www.premiumbeat.com/blog/record-indie-filmmaking-audio/
b. 6 Audio Recording Tips for DIY Filmmakers. EMMA GAROFALO. PUBLISHED November 7, 2021. https://www.makeuseof.com/audio-recording-tips-for-film/
c. Everything You Need to Know About Recording Production Sound for Film. Henri Rapp. July 8, 2020. https://nofilmschool.com/what-you-need-know-about-recording-production-sound (https://nofilmschool.com/what-you-need-know-about-recording-production-sound/)
d. Ultimate Guide to Sound Recording: Audio Gear and Techniques. STUDIOBINDER. December 16, 2019. https://www.studiobinder.com/blog/sound-recording/
e. Production Sound Equipment for Film. Henri Rapp. 2022. https://henrirapp.com/production-sound-recording-gear/
f. Everything You Need to Know About ADR in Film (and Didn't Know to Ask). June 11, 2018. Jeff Hinton. https://blog.frame.io/2018/06/11/adr-film-primer/
g. Movie Sound — A Filmmaker's Guide to Sound Effect Technique. DREW GULA. August 17, 2020. https://www.studiobinder.com/blog/film-sound-effect-techniques/
h. Sound and Picture. https://soundandpicture.com/

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