

## AUDIO ENGINEERING II - AUDIO 255

### COURSE ABILITIES AND LEARNING OUTCOMES

1. Organize a coherent system for documenting recording and mix sessions. Students will be able to recall exact microphone placements, signal routing and equipment settings used during sessions.
2. Explain coincident, near-coincident, and spaced pair stereo microphone recording techniques and compare the aesthetic qualities of each. Utilize these techniques in recording projects.
3. Demonstrate ability to operate a digital audio workstation (Pro Tools) and control surface in conjunction with analog consoles and outboard gear during recording and mixing sessions.
4. Describe and explain functions of dynamics and time based signal processors used in professional recording studios. Set up and use these devices during recording and mix projects.
5. Memorize and list the steps necessary to calibrate analog tape machines and digital gear to professional reference standards. Perform a full electronic calibration of an MCI multi track tape machine.
6. Analyze mixing techniques of professionally produced music and replicate on student projects.

### COURSE OUTLINE

- I. Control Room Signal Flow Overview and Review
  - A. Pro Tools
    1. Intro to control surfaces
    2. Interfacing with console via patch bay
  - B. Console settings for recording/ mixing
  - C. Outboard Gear
- II. Session Documentation
  - A. Recording Documentation
    1. Sound Source
    2. Recording Chain
    3. Examine Industry Standards
  - B. Mixing Documentation
    1. Console
    2. Outboard
    3. Patch bay
    4. Documentation for Digital Audio Workstations
    5. Examine Industry Standards
- III. Stereo Microphone Techniques
  - A. Coincident Techniques
    1. XY
    2. MS

- 3. Blumlein
  - B. Near Coincident
    - 1. NOS
    - 2. ORTF
  - C. Spaced Pair
    - 1. A/B
    - 2. Decca Tree
  - D. Binaural Recording
  - E. Localization
    - 1. Intensity Cues
    - 2. Phase Cues
  - F. Acoustic Project
- IV. Signal Processing
- A. EQ
    - 1. Review
    - 2. Application
  - B. Dynamics
    - 1. Review
    - 2. De-essers
    - 3. Triggering Gates with Key Inputs
  - C. Re-Amping Techniques
  - D. Time Based
    - 1. Setting Up Tape Slap
    - 2. Setting up the studio as an Echo Chamber
    - 3. Pitch Shifting
- V. Analog Tape Machines
- A. Operating Levels
  - B. Calibration
    - 1. Mechanical Adjustments
    - 2. Electronic Adjustments
- VI. Large Tracking Sessions
- A. Session Management/ Organization
  - B. Cue Systems
  - C. Drum Micing
  - D. Instrument Micing
  - E. Overdubs
  - F. Pro Tools Record Modes
  - G. Electric Band Project
- VII. Mixing
- A. Genre Considerations
  - B. Mixing and Arranging
  - C. Automation
  - D. Calibrating 2-track recorders
  - E. Final Mix Project