

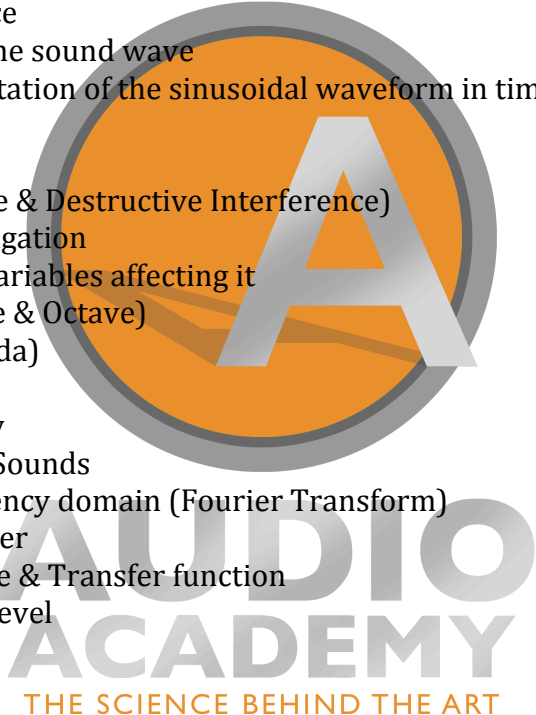
Audio Academy

AE101 Introduction To Audio Engineering

Unit 1 PHYLOSOPHY & HISTORY OF SOUND PRODUCTION

- 1.1 Why do we study sound ?
- 1.2 History of audio production
- 1.3 What is sound ?

Unit 2 PHYSICS OF SOUND

- 2.1 The vibrating source
 - 2.2 Characteristics of the sound wave
 - * Graphical representation of the sinusoidal waveform in time domain
 - * Amplitude
 - * Period
 - * Phase (Constructive & Destructive Interference)
 - 2.3 Sound Wave Propagation
 - * Speed of sound & variables affecting it
 - * Frequency (Decade & Octave)
 - * Wavelength (λ)
 - * Wave number (K)
 - * Inverse Square Law
 - 2.4 Simple & Complex Sounds
 - * Sound in the frequency domain (Fourier Transform)
 - * Harmonics & Timber
 - * Frequency response & Transfer function
 - 2.5 Measuring Sound Level
 - * Sound Pressure
 - * The Decibel SPL
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Unit 3 BASIC ACOUSTICS

- 3.1 Sound in its environment
 - * Free & Reverberant Fields
 - * Proximity effect
- 3.2 Reflection
 - * Surfaces
- 3.3 Absorption
 - * Absorption Coefficient & Surfaces
- 3.4 Transmission
- 3.5 Refraction (Diffusion)
- 3.6 Reverberation & Echoes
- 3.7 RT
- 3.8 Room Modes

3.9 Design Guidelines

Unit 4 AUDIOTORY PRECEPTION

4.1 Ear Anatomy & Hearing Mechanism

4.2 Loudness Perception

4.3 Fletcher Munson Curves

- * Threshold Of Hearing

- * Threshold Of Pain

4.4 Directional Perception

4.5 Stereo

4.6 Frequency Response

4.7 Sensitivity

4.8 Masking

4.9 Doppler Effect

Unit 5 ELECTRICITY & AUDIO ELECTRONICS

5.1 Electrical Current Generation

5.2 Current Types

5.5 Electronic Components

5.6 Current Conversion

5.7 Ohm's Law

5.8 Basic Circuits

- * Transfer Function

- * Dynamic Range

- * Headroom

- * SNR

5.9 Audio Circuits I (Amplifiers)

- * Operation

- * Classes

- * Specs

5.10 Audio Circuits II (Filters)

- * Types

Unit 6 AUDIO SIGNAL CHAIN

6.1 History

6.2 Recording Chain

6.3 Live Sound Chain

6.4 Broadcasting Sound Chain

6.5 Mixing Consoles

6.6 Audio Signal Processing

- * Dynamic Signal Processing

- * Effects Explained



Unit 7 DIGITAL AUDIO

- 7.1 Sampling
- 7.2 Quantization
- 7.3 A/D & D/A Conversion
- 7.4 Formats
- 7.5 DSP

Unit 8 MICROPHONES

- 8.1 History
- 8.2 Types
 - * Operation
 - * Polar Pattern
 - * Design
- 8.3 Specs

Unit 9 LOUDSPEAKERS

- 9.1 History
- 9.2 Types
- 9.3 Enclosures
- 9.4 Specs
- 9.5 Subwoofers
- 9.6 Performance

Unit 10 LINES, CONNECTIONS & BALANCING

- 10.1 Unbalanced Lines & Earth Loops
- 10.2 Balanced Lines
- 10.3 Balancing
 - * Transformers
 - * Electronic



AUDIO
ACADEMY
THE SCIENCE BEHIND THE ART