NPTEL Video Course - Mechanical Engineering - NOC:Basics of Noise and Its Measurements

Subject Co-ordinator - Prof. Nachiketa Tiwari

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Vibration versus Waves
Lecture 3 - Nature of Sound
Lecture 4 - The Decibel Scale
Lecture 5 - Some Key Terms
Lecture 6 - Adding Decibels
Lecture 7 - Modeling Sound Propagation
Lecture 8 - The Momentum Equation
Lecture 9 - The Continuity Equation and The Gas Law
Lecture 10 - 1-D Wave Equation
Lecture 11 - General Solution for 1-D Wave Equation
Lecture 12 - Complex Time Signal and Transfer Functions
Lecture 13 - Transmission line equations
Lecture 14 - Planar Waves in Closed Tubes
Lecture 15 - Planar Waves in 1-D Open Tubes
Lecture 16 - A Semi-Infinite Tube and Overall Summary
Lecture 17 - 1-D Tubes with Imperfect Terminations
Lecture 18 - Measuring Impedance Through KundtÂ s Apparatus
Lecture 19 - Classification of Microphones
Lecture 20 - Classification of Microphones - Continuation
Lecture 21 - Classification of Microphones by Application
Lecture 22 - Microphone Sensitivity
Lecture 23 - Microphone Sensitivity- Continuation
Lecture 24 - Selecting the Right Microphone
Lecture 25 - Fourier Series Expansion
Lecture 26 - Fourier Series Expansion - Continuation
Lecture 27 - Fourier Integral
Lecture 28 - Fourier Integral - Continuation
Lecture 29 - Fourier Transform

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Lecture 30 - Fourier Transform - Continuation
Lecture 31 - Discrete Fourier Transform (DFT)
Lecture 32 - Discrete Fourier Transform (DFT) - Continuation
Lecture 33 - DFT - Calculating Frequencies and Padding
Lecture 34 - DFT - Influence of Duration and Sampling frequency on resolution
Lecture 35 - FFT and Inverse FFT
Lecture 36 - Considerations while deciding instrumentation
Lecture 37 - Considerations while selecting instruments for noise measurements
Lecture 38 - Measuring impedance through two microphone method
Lecture 39 - Designing an impedance measurement tube
Lecture 40 - Octave band analysis
Lecture 41 - Calculating results in octave bands
Lecture 42 - Weighting
Lecture 43 - Short time Fourier transforms (STFT)
Lecture 44 - Spectrograms
Lecture 45 - Reverberation time
Lecture 46 - Anechoic rooms
Lecture 47 - STC, NRC and sound attenuation
Lecture 48 - Reverberant rooms
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