

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - Acoustic Instabilities in Aerospace Propulsion

Subject Co-ordinator - Prof. R.I. Sujith

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Thermoacoustic Instabilities  
Lecture 2 - Part I  
Lecture 3 - Wave Equation and its Solution in Time Domain  
Lecture 4 - Part I  
Lecture 5 - Standing Waves - 1  
Lecture 6 - Standing Waves - 2  
Lecture 7 - Power Flow and Acoustic Admittance  
Lecture 8 - Impedance Tube Technique  
Lecture 9 - Admittance and Standing Waves  
Lecture 10 - Admittance, Stability and Attenuation  
Lecture 11 - Attenuation  
Lecture 12 - Sound Propagation Through Inhomogeneous Media - 2  
Lecture 13 - Sound Propagation Through Inhomogeneous Media - 3  
Lecture 14 - Multidimensional Acoustic Fields - 1  
Lecture 15 - Multidimensional Acoustic Fields - 2  
Lecture 16 - Interaction between Sound and Combustion  
Lecture 17 - Reference Books Derivation of Rayleigh Criteria  
Lecture 18 - Effect of Heat release on the Acoustic Field  
Lecture 19 - Modal Analysis of Thermoacoustic Instability - 1  
Lecture 20 - Modal Analysis of Thermoacoustic Instability - 2  
Lecture 21 - Active Control of Thermoacoustic Instability  
Lecture 22 - Toy model for a Rijke tube in Time Domain  
Lecture 23 - Galerkin Technique for Thermoacoustics  
Lecture 24 - Evolution Equation for Thermoacoustics  
Lecture 25 - Non linear analysis of Thermoacoustic Instability  
Lecture 26 - Non-normality, Transient Growth and Triggering Instability - 1  
Lecture 27 - Non-normality, Transient Growth and Triggering Instability - 2  
Lecture 28 - Non-normality, Transient Growth and Triggering Instability - 3  
Lecture 29 - Bifurcations

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- Lecture 30 - Premixed Flame Acoustic Interaction - 1
- Lecture 31 - Premixed Flame Acoustic Interaction - 2
- Lecture 32 - Combustion instability due to Equivalence Ratio Fluctuation
- Lecture 33 - Role of Hydrodynamic Instabilities - 1
- Lecture 34 - Role of Hydrodynamic Instabilities - 2
- Lecture 35 - Role of Hydrodynamic Instabilities - 3
- Lecture 36 - Active Control of Thermoacoustic Instability Revisited
- Lecture 37 - Solid Propellant Combustion Instability - 1
- Lecture 38 - Solid Propellant Combustion Instability - 2
- Lecture 39 - Response of a Diffusion Flame to Acoustic Oscillations - 1
- Lecture 40 - Response of a Diffusion Flame to Acoustic Oscillations - 2
- Lecture 41 - Response of a Diffusion Flame to Acoustic Oscillations - 3