

# Acoustics - Video course

## COURSE OUTLINE

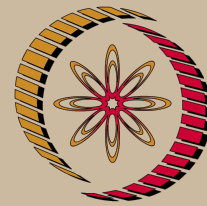
Acoustics fundamentals, terminology, 1-D wave equation in Cartesian coordinates and in spherical coordinates, transmission line equations, electromechanical transduction and mechano-acoustic transduction using lumped parameter approach, modeling of complex electro-magnetic-mechanical-acoustic systems, sound radiation, propagation and attenuation of sound, waveguides, and the interplay between vibrations and acoustics.

## COURSE DETAIL

Sl. No	Topic	Lectures
1.	Introduction, review of concepts, terminology, etc.	4
2.	Wave equation (1-D, 3D, spherical 1D) and its solutions.	4
3.	Transmission line equations, waveguides, 1D plane waves, interferences.	4
4.	Distributed parameters, illustrations, PSWR, simple source arrays, energy flow, power, intensity, attenuation thru mass, spatial damping.	4
5.	Generalized elements, laws on interconnect, electrical, mechanical and acoustic elements.	4
6.	Applications – electrodynamic transducers, and microphones.	7
7.	Applications – room acoustics.	6
8.	Other applications and closure.	7

## References:

Acoustics, Beranek, Leo L., reprinted by Acoustical Society of America, 1986.



NP-TEL

# NPTEL

<http://nptel.iitm.ac.in>

## Mechanical Engineering

### Pre-requisites:

- The student should be at least a 3rd year engineering student in a 4-year undergraduate degree program.
- He should be well grounded in mechanics' fundamentals, complex variables, and engineering mathematics, and should have some exposure to RLC circuits in electrical engineering realm.

### Coordinators:

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