

Objectives of Chapter 17

Sound waves are used in various fields of science and engineering for diagnosis and evaluation.

In this chapter we will discuss sound waves and their physical properties.

After reading this chapter you should be able to:

1. Calculate **the speed of sound** in various media if you are given the physical properties of the media
2. **Write the equation of a traveling sound wave** and identify the various parameters
3. **Understand sound wave interference** and the concept of path length difference for fully destructive and fully constructive interference
4. Calculate **the intensity of sound** waves and sound level
5. Understand and apply the principle of **standing waves and resonance** and be able to **calculate the resonant frequencies** air columns
6. Understand the concept of **Doppler effect** in sound waves and calculate the observed frequency