



		function for sources, acoustic sound from moving sources, sound generation by flow	
5	Acoustic standing waves	Acoustic transmission lines, non-planar modes, reflections from discontinuities, standing waves in cavities, coupled cavities, reverberation chambers	8
6	Acoustic resonators and passive damping devices	Organ pipe, Rijke tube, Helmholtz resonator, quarter-wave resonator, dissipation at an orifice, acoustic liners, characterization of acoustic devices	7

(C) Recommended pre-requisites: Undergraduate level fluid mechanics and thermodynamics

(D) Short summary: The course is designed for students interested in understanding fundamental aspects of acoustics in fluids. The course opens with a discussion on oscillations and waves in general. The discussion is subsequently developed further in the context of acoustics in fluids. The relevant governing equations are developed. Wave propagation and dissipation is discussed. Discussion on sound generation mechanisms and sound sources is taken up next. The special case of standing acoustic waves (as opposed to traveling acoustic waves) which constitutes a large number of practical scenarios is discussed. Finally, the developed framework is applied to practical acoustic devices: resonators and passive damping devices.

7. Recommended books:

Textbooks: NA

Reference books:

Sound and Sources of Sound, Dowling, A. P. and Ffowcs Williams, J. E. F., E. Norwood, 1983

Theoretical Acoustics, Morse, Philip M. and Ingard, K. Uno, Princeton University Press, 1986

8. Any other remarks:

Dated: \_\_13.11.2024\_\_ Proposer: \_\_Aditya Saurabh\_\_

Dated: \_\_\_\_\_ DPGC Convener: \_\_\_\_\_

**The course is approved/not approved**

**Chairman SPGC**

Dated: \_\_\_\_\_