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ME 250(AUG) 3:0

Structural Acoustics

Instructor(s): Venkata R Sonti

Course description:

Vibration and acoustic response of an infinite plate in contact with an acoustic half space to a line force (Crighton's solution). Complex variables, integration with branch cuts. Fluid-structure coupling in 2-D flexible-walled waveguides using asymptotic expansions (rectangular and cylindrical geometries). Coupling of sound with flexible enclosures. Sound radiation from finite rectangular plates and cylindrical shells. Transform and Rayleigh integral methods. Coincidence and wave number spectra, wave impedance, radiation efficiency.

Prerequisites:

1. Consent of Instructor Junger, M.C., and Feit, D., Sound, Structures and their Interaction, MIT Press,,1986. Fahy, F.J., Sound and Structural Vibration, Academic Press, 1985. Cremer, L., Heckl, M., and Ungar, E. E., Structure-Borne Sound, Springer- Verlag, 1987.
2. Fundamentals of acoustics ME249
3. Sound and Structure Interaction by Frank Fahy

Resources:

Outcomes:

Additional information:

Course website: