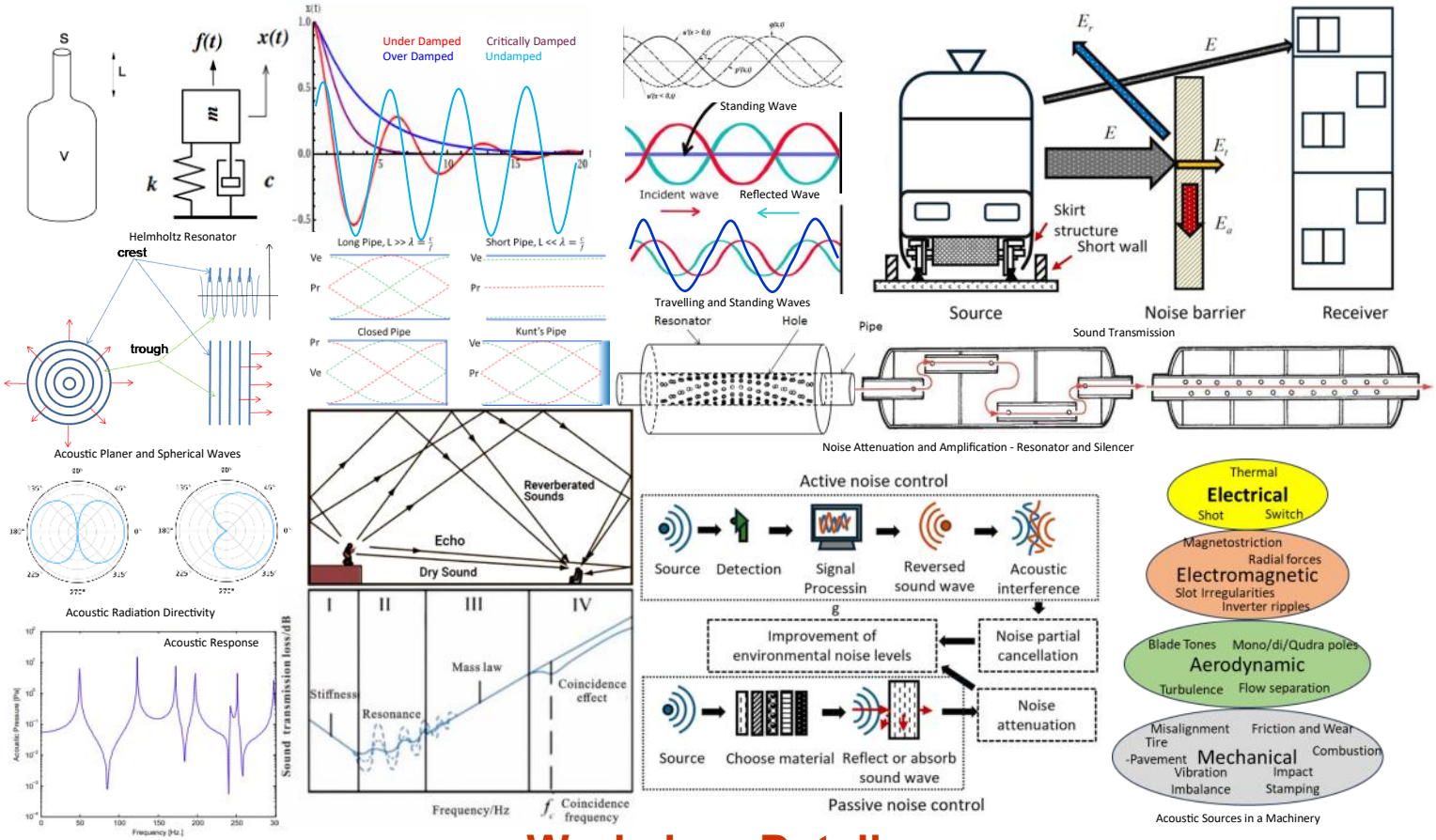
IIAS Indian Institute for Autonomous Systems

ONE-DAY WORKSHOP ON MACHINERY ACOUSTICS



Workshop Details

Schedule and Type:	Nov. 22, 2026, Sunday; Instructor led interactive + demo + QA
Workshop Duration:	5 Hours, online, 1 day
Conduction Mode:	Online:10:00 AM-5:00 PM with a half an hour break for each one hour session
Attendee Background:	Mechanical, Automotive and Aerospace
Instructors:	Dr. Prashanth Dalawai
Registration via Email:	info@iias-uv.in
Registration Deadline:	Nov. 20, 2026

Workshop Objective

Machines are inherently designed for noise as designing them for quitter operations is very expensive that demands extensive mathematical modelling and theoretical treatment and consideration of psychological factors. To reduce the machinery noise, the practicing engineers require the understanding of the acoustic fundamentals, identifying source of noise in a machinery, and noise generation phenomena in a machinery, and means to reduce it.

This workshop is specifically designed for practicing engineers, with emphasis on practical noise analysis, result interpretation, identification of machinery noise, and implementation of corrective measures which should appeal to industry engineers. Mathematical treatment will be kept to a minimum and introduced only where necessary to support practical understanding and engineering decision-making.

IIAS training division offers an advanced training program and workshop by providing both theoretical, computational and hands-on testing foundations and real-world case studies on automotive, aerospace and heavy engineering machinery. These programs concentrate more on the faster adaptation of technology to the respective industries and reduce the training curve. This workshop is designed carefully to give the essential fundamentals as well as practical implementation skills through real case studies. The instructor has three decades of experience in designing a verity of products for NVH in industry and teaching vibration/design courses.

Workshop Content

Analysis of Machinery Vibrations: Duration (Hrs.):05

Sl.	Topic	Time
1	**Fundamentals of Acoustics:** Psycho-acoustics, sound qualities, wave equation, wave transmission in pipes. Acoustic source models, combination of sources and moving sources, propagation of plane, spherical and cylindrical waves in fluids. ISO standard for machinery acoustics.	10:00AM
2	**Noise Transmission Mechanisms:** Types of transmission noise - air, structure and fluid-borne noises. Near and far field acoustics, outdoor and indoor acoustics, TL and TPA. Enclosed space acoustics and reverberation. Case studies.	11:00AM
3	**Sound Measurement:** Acoustic sensors, sensor selection, mounting, measurement locations and directions. Data acquisition systems. Signal processing - Time, frequency and -Time-frequency domain representation. Interpreting frequency spectra, spectrogram and scalogram. Practical measurement considerations. Case studies.	12:00PM
4	**Machinery Noise:** Sources and causes of interior and radiated noise in a machinery. Results interpretation. Aerodynamic and mechanical noise sources-rotating equipment, motors, pumps, compressors, reciprocating engines, gear and impact machinery. Vibro-acoustic analysis. Case studies.	03:00PM
5	**Machinery Noise Control:** Active and passive, source and path control techniques. Soundproofing, mass barrier, zoning, damping and isolation pads, porous materials. Silencers & Mufflers Feedback and feedforward controllers, Case studies.	04:00PM

Contact Us

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