



Mechanical Engineering

Industrial Noise Control and Acoustics

Course Introduction

Industrial noise is a significant concern in many industries, affecting worker health, productivity, and overall safety. Excessive noise exposure can lead to hearing loss, stress, and a decrease in workplace performance. Noise control and acoustics are essential for creating safe, comfortable, and productive environments. Implementing effective noise control measures can help reduce health risks, improve compliance with regulations, and enhance communication in industrial settings. Understanding the principles of acoustics and noise control is crucial for engineers and technicians to design and maintain quieter work environments.

This program will cover the fundamentals of industrial noise control, including noise measurement, sound propagation, and acoustic materials. Participants will learn about the sources of industrial noise and how to assess and mitigate noise levels. The course will also introduce techniques for soundproofing, vibration isolation, and the use of acoustic enclosures.

Target Audience

This course is designed for engineers, technicians, and safety professionals responsible for managing industrial noise and acoustics.

Learning Objectives

- Understand the basic principles of industrial noise and acoustics and their impact on health and productivity.
- Learn how to measure and assess noise levels in industrial environments.
- Gain knowledge about acoustic materials and techniques for soundproofing and noise reduction.

- Explore methods for controlling vibrations and isolating noise in industrial systems.
- Develop strategies for implementing effective noise control measures and ensuring compliance with regulations.

Course Outline

• 01 DAY ONE

Introduction to Industrial Noise and Acoustics

- What is industrial noise and its impact on health and productivity
- Overview of sound and noise principles (sound waves, frequency, amplitude)
- Understanding sound pressure levels and decibels (dB)
- Noise regulations and standards (OSHA, EPA, ISO)
- Types of industrial noise (steady, impulsive, intermittent)
- Sources of noise in industrial environments
- Overview of noise measurement equipment and techniques

• 02 DAY TWO

Noise Measurement and Sound Level Assessment

- Introduction to sound measurement tools (sound level meters, dosimeters)
- How to measure sound levels in different industrial settings
- Frequency analysis and octave bands in noise measurement
- Understanding A-weighted vs C-weighted measurements
- Sound level mapping and noise surveys
- Calculating noise exposure and permissible limits
- Analyzing measurement data to identify problem areas

• 03 DAY THREE

Acoustic Materials and Soundproofing Techniques

- Types of acoustic materials (absorbers, barriers, isolators)
- Principles of sound absorption and sound reflection
- Choosing the right materials for different industrial environments
- How to design soundproof enclosures and barriers
- Vibration isolation methods to reduce noise transmission
- Acoustic treatment for industrial machinery and equipment

• 04 DAY FOUR

Vibration Control and Noise Isolation in Industrial Systems

- Understanding the relationship between vibration and noise
- Techniques for controlling vibrations in machines and structures
- Use of vibration isolators and dampers
- Designing low-noise machinery and equipment
- Isolation of noise from HVAC systems, pipes, and ducts
- The role of flexible mounts and resilient materials in noise control

• 05 DAY FIVE

Noise Control Strategies and Implementation

- Identifying and assessing noise control options
- Designing effective noise control systems and strategies
- Integrating noise control measures into existing systems
- Maintenance and monitoring of noise control solutions
- Cost-benefit analysis of noise control measures

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 5, 2025	May 9, 2025	5 days	4250.00 \$	UAE - Dubai
Sept. 1, 2025	Sept. 5, 2025	5 days	4250.00 \$	UAE - Dubai
Dec. 22, 2025	Dec. 26, 2025	5 days	5950.00 \$	USA - Los Angeles