



TECHNICAL TRAINING SERVICES

**Memtech Acoustical Training Courses:
NOISE AND VIBRATION**



TRAINING COURSE:

NOISE AND VIBRATION

The following classes are available for engineers, skilled tradespeople, technicians and managers who are involved in taking noise or vibration readings, performing noise surveys, or in solving noise and vibration problems. They can be held at your facility, at MEMTECH's office in Rochester, Michigan, or at an offsite venue of your choosing. Our *Six Sigma Black Belt Certified* staff have extensive experience in acoustic measurements, noise and vibration analysis and signal processing. We also have licensed professional engineers who can provide exceptional training in the fields of legal noise compliance and advanced acoustics. Our classes are highly "hands-on" and interactive. We can make measurements and perform analysis on your equipment, or on production machines in our area. Please contact us at 248-289-1123 for detailed information on class content, schedules and pricing. References are available upon request. We are more than happy to tailor our classes to meet the needs of your specific facility and/or requirements.

Memtech Training Course: NOISE AND VIBRATION



NOISE AND VIBRATION AVAILABLE COURSES

Hearing Loss Mitigation and Noise Control Management (NM101)

Basic Noise Measurements (NM102)

Advanced Noise Measurements (NM103)

Noise Control Basics (NM104)

Basic Vibration Measurements (NM105)

Advanced Noise and Vibration Classes (NM106)

A number of additional advanced classes are available to support engineers and technical staff in improving their analytical and problem-solving skills for noise issues, including Product Engineering NVH classes. Contact us for details.

** Sales@MemtechAcoustical.com

Training Course Descriptions: NOISE AND VIBRATION



Hearing Loss Mitigation and Noise Control Management (NM101)

This one-day class provides a strong background for managers, health and safety personnel and engineers involved in the implementation and oversight of noise control programs in plants and commercial facilities. Issues relating to OSHA and/or NIOSH mandates for employee noise exposure are covered in-depth, along with reporting and documentation requirements. Concerns with environmental (neighborhood) noise compliance, including city and state noise codes are also included. Topics covered include:

- The Basics of Acoustics
- Employee Noise Exposure Legal Requirements and Criteria
- Noise Compliance Measurements
- Establishing a Noise Control Program in Plants and Commercial Operations
- Noise Control/Reduction Methods
- Reporting Requirements
- Environmental Noise Issues
- Compliance with City and State Noise Codes
- Environmental Noise Control Methods



Basic Noise Measurements (NM102)

This is a one-day class for hourly engineers, hourly employees and managers. It provides a general introduction to acoustics and the use of a sound level meter. Participants are encouraged to bring a sound level meter that they will be using for measurements, or MEMTECH can supply a meter if necessary. Students will be capable of making accurate sound measurements in both indoor and outdoor situations, including verifying OSHA compliance, as well as identifying noise sources and quantifying hearing-loss concerns. The material includes:

- The Basics of Acoustics
- Introduction to Sound Level Meters
- Calibration
- Noise Standards and Criteria
- Identification of Noise Sources
- Common Pitfalls in Making Noise Measurements
- Noise Annoyance Issues
- Reporting Data



Advanced Noise Measurements (NM103)

This is a one-day class for hourly engineers, hourly employees and managers. It provides a general introduction to acoustics and the use of a sound level meter. Participants are encouraged to bring a sound level meter that they will be using for measurements, or MEMTECH can supply a meter if necessary. Students will be capable of making accurate sound measurements in both indoor and outdoor situations, including verifying OSHA compliance, as well as identifying noise sources and quantifying hearing-loss concerns. The material includes:

- Near and Far Field Measurements
- Octave Band and FFT Analysis
- Measuring Sound Transmission Loss
- Environmental Noise Measurements
- Statistical Methods of Noise Analysis
- Basic Time-Domain Analysis
- Quantifying Noise Reflections

Training Course Descriptions: NOISE AND VIBRATION



Noise Control Basics (NM104)

This week-long class is intended for engineers and managers who wish to become proficient in both noise measurements and basic noise-related problem solving. It is a highly “hands-on” course which allows the participants to take readings and recommend cost-effective solutions in a variety of situations. This class requires the use of both a sound level meter and a 2-channel signal analyzer. Students are encouraged to bring their own equipment, or MEMTECH can provide them for the class. It includes all the material covered in NM 101 and NM 102, plus:

- Intermediate Acoustic Theory
- Noise Control Materials and Their Applications
- Types of Microphones and Applications
- FFT Analysis
- Measuring Reverberation
- Noise Control in Rooms and Auditoriums
- Noise Control in Manufacturing Facilities
- NVH Measurements for Product Engineering
- Basic Vibration Measurements
- Environmental Noise Control
- Multi-Channel Analysis Methods (Cross-Spectrum and Coherence)
- Sound Power Measurements

NOTE: This class can be truncated to a 3-day length if the participants have a strong background in noise measurement, and/or have already taken NM 101 and NM 102.



Basic Vibration Measurements (NM105)

This is a two-day class for hourly engineers, hourly employees and managers. It provides a general introduction to making accurate vibration measurements on new products or manufacturing equipment. Participants are encouraged to bring an analyzer or data collector that they will be using for measurements, or MEMTECH can supply the needed equipment if necessary. Students will be capable of making accurate vibration measurements in a variety of situations, including assuring compliance with equipment vibrations standards and in understanding the effects of vibration on noise levels. In addition, issues such as vibration-induced machine failures or part quality concerns will be covered. The material includes:

- Vibration Basics
- Types of sensors and applications
- Analyzer setup and functions
- Connections and mounting sensors
- Basic vibration theory
- Types of analysis
- Time domain
- FFT
- Cross-channel
- Special processing methods
- Solving Vibration Problems on Machinery
- Cause/Effect of Noise and Vibration
- Product Engineering NVH Basics
- Validating your data



Advanced Noise and Vibration (NM106)

A number of additional advanced classes are available to support engineers and technical staff in improving their analytical and problem-solving skills for noise issues, including Product Engineering NVH classes. Contact us for details!