

**UNIVERSITY OF HOUSTON – DOWNTOWN**

**ENGR 4310 - INDUSTRIAL HYGIENE INSTRUMENTATION**

**LECTURE NOTE OUTLINE – INDUSTRIAL NOISE – CHAPTER 9**

**WEEK 8**

- I. Compensation Aspects
  
- II. Properties of Sound
  - A. Noise
  - B. Sound Waves
  - C. Frequency
  - D. Wavelength
  - E. Velocity
  - F. Sound Pressure
  - G. Decibels and Levels
  - H. Loudness
    - 1. Equal-Loudness Contours
    - 2. Sound Pressure Weighting
  
- III. Occupational Damage-Risk Criteria
  - A. Hearing Ability
  - B. AMA Guides
  - C. Risk Factors
  - D. Analysis of Noise Exposure
  
- IV. Sound Measuring Instruments
  - A. Sound Level Meters
    - 1. Microphone
    - 2. Amplifier
    - 3. Attenuators
    - 4. Weighting Networks
    - 5. Metering System
    - 6. Octave Band Analyzers
    - 7. Noise Dosimeters

- V. Sound Surveys
  - A. Source Measurements
  - B. Preliminary Noise Survey
  - C. Detailed Noise Survey
    - 1. Area Measurements
    - 2. Workstation Measurements
    - 3. Exposure Duration
  - D. General Classes of Noise Exposure
    - 1. Continuous Noise
    - 2. Intermittent Noise
    - 3. Impact-Type Noise
  
- VI. Noise-Control Programs
  - A. Source
  - B. Noise Path
  - C. Enclosures
  - D. Control Measures
    - 1. Engineering
    - 2. Administrative Controls
    - 3. PPE
  - E. Classes of Hearing Protection
    - 1. Enclosures (entire head)
    - 2. Aural inserts, or earplugs
    - 3. Superaural protectors, or canal caps
    - 4. Circumaural protectors, or earmuffs
  - F. Selection of Protector
  
- VII. Industrial Audiometry
  - A. Threshold Audiometry
  - B. Examinations
  - C. Effective Programs
    - 1. Medical Surveillance
    - 2. Qualified Personnel
    - 3. Suitable Test Environment
    - 4. Calibrated Equipment
    - 5. Adequate Records
  
- VIII. Noise-Exposure Regulations
  - A. OSHA Noise Standard
  - B. Hearing Conservation Programs
    - 1. Monitoring
    - 2. Audiometric Testing
    - 3. Hearing Protectors
    - 4. Training
    - 5. Record Keeping
  - C. NIOSH and ACGIH Noise-Exposure Guidelines