**UNIVERSITY OF HOUSTON – DOWNTOWN**

**ENGR 4310 - INDUSTRIAL HYGIENE INSTRUMENTATION**

**LECTURE NOTE OUTLINE – METHODS OF CONTROL – CHAPTER 18**

**WEEK 12**

I. Methods of Control
   - A. Engineering controls
   - B. Administrative controls
   - C. PPE

II. Engineering Controls at Design Stage
   - A. Design
   - B. Maintenance Considerations
   - C. Design Specifications
   - D. Hazardous Materials

III. General IH Control Methods

IV. Principles of Engineering Controls
   - A. Substitution
   - B. Isolation
   - C. Ventilation

V. Administrative Controls
   - A. Reduction of Work Periods
   - B. Wet Methods
   - C. Personal Hygiene
   - D. Housekeeping
   - E. Maintenance

VI. Special Control Methods

VII. Waste Disposal

VIII. PPE
   - A. Respiratory Protective Devices
   - B. Protective Clothing
   - C. Eye and Face Protection
   - D. Hearing Protection

IX. Education and Training

X. Health Surveillance

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**LECTURE NOTE OUTLINE – RESPIRATORY PROTECTION – CHAPTER 22**

**WEEK 12**

I. Respiratory Protection Programs
   - A. Worksite-Specific Procedures
   - B. Exposure Assessment of Respirator Wearers
   - C. Selection of Proper Respiratory-Protective Equipment
   - D. Medical Evaluations of Respirator Wearers
   - E. Respirator Fit
   - F. Training
   - G. Respirator Maintenance
     1. Cleaning and Disinfecting
     2. Inspection
     3. Repair
     4. Storage
   - H. Air Quality
   - I. Program Administration

II. History of Respirator Regulations and Approvals

III. Classes of Respirators
   - A. Air-Purifying Devices
   - B. Aerosol-Removing Respirators
   - C. Gas/Vapor-Removing Respirators
   - D. Combination Aerosol Filter/Gas or Vapor-Removing Respirators
   - E. Powered Air Purifying Respirators (PAPRs)
   - F. Atmospheric-Supplying Respirators
     1. Air-Line Respirators
        - a. Demand
        - b. Pressure demand
        - c. Continuous flow
     2. Self-Contained Breathing Apparatus
        - a. Closed-circuit
        - b. Open-circuit
   - G. Combination SCBA/Air-Line Respirator
   - H. Combination Air-Purifying and Atmosphere-Supplying Devices

III. Respirator Selection
- A. Requirements
- B. Hazard Determination
  1. Skin Selection
  2. Warning Proterties
- C. Selection Steps
  1. IDLH
  2. LEL and Fire Fighting
  3. Assigned Protection Factors
- D. Cartridge Change-Out Schedule
- E. Effective Protection Factor

IV. Respirator Fit Testing
- A. Qualitative Fit Testing
- B. Quantitative Fit Testing
- C. Protocols