

**UNIVERSITY OF HOUSTON – DOWNTOWN**

**ENGR 4310 - INDUSTRIAL HYGIENE INSTRUMENTATION**

**LECTURE NOTE OUTLINE – CHAPTER 6**

**WEEK 3**

- I. Definition
  - A. Toxicology
  - B. IH Perspective
  - C. Toxicity vs. Hazard
  - D. IH Perspective
  - E. Toxicity
  - F. Hazard
  - G. Local vs. Systemic
  
- II. Routes of Exposure
  - A. Inhalation
  - B. Skin Absorption
  - C. Ingestion
  - D. Injection
  
- III. Dose-Response Relationship
  - A. Dose-Response as  $C \times T$
  - B. Threshold vs. No-Effect Level
  - C. Toxicity – Chemical substance; Type and level of exposure; and fate
  - D. No Observable Effect Level (NOEL)
  - E. Lethal Dose (LD<sub>50</sub>)
  - F. Slope of Dose Response Curve
  - G. Lethal Concentration (LD)
  - H. Responses
  - I. Acute vs. Chronic

- IV. Effects of Exposure
  - A. Irritation
  - B. Allergens
  - C. Simple Asphyxiants
  - D. Chemical Asphyxiants
  - E. Organ-Specific Effects
    - 1. CNS
    - 2. Cardiac
    - 3. Neural
    - 4. Pulmonary
    - 5. Carcinogenesis
    - 6. Mutagenesis
    - 7. Reproductive Toxicity
    - 8. Teratogens
  
- V. Workplace Standards
  - A. Chemical Analogy
  - B. In-Vitro Testing
  - C. Animal Experimentation
    - 1. Exposure Standards
    - 2. Screening Procedures
    - 3. Problem Areas
  - D. Human Epidemiological Data
  
- VI. Federal Regulations
  - A. OSHA Act
  - B. TOCA
  - C. NIOSH/OSHA Standards
  
- VII. Others Technical Guidelines
  - 1. TLVs
  - 2. TWAs
  - 3. Ceiling Values
  - 4. Mixtures
  - 5. Carcinogens
  - 6. Physical Factors
  - 7. Unlisted Substances
  - 8. Basic Data
  - 9. Documentation
  - 10. BEIs
  
- VIII. Sources of Toxicological Information
  - A. MSDS
  - B. Other Resources