

**UNIVERSITY OF HOUSTON – DOWNTOWN**

**ENGR 4310 - INDUSTRIAL HYGIENE INSTRUMENTATION**

**LECTURE NOTE OUTLINE – CHAPTER 2**

**WEEK 2**

- I. Anatomy
  - A. Nose
  - B. Throat
  - C. Larynx
  - D. Trachea
  - E. Bronchi
  - F. Lungs
  
- II. Respiration
  - A. Gas Exchange
  - B. Pressure Changes
  - C. Control of Breathing
  - D. Lung Volumes and Capacities
  
- III. Hazards
  - A. Atelectasis
  - B. Emphysema
  - C. Pleurisy
  - D. Pneumonitis
  - E. Bronchitis
  - F. Pneumoconiosis
  
- IV. Defenses/Impairment

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**LECTURE NOTE OUTLINE – CHAPTER 3**

**WEEK 2**

- I. Anatomy
  - A. Epidermis
  - B. Dermis
  - C. Subcutaneous Layer
  - D. Glands in the Skin
  - E. Blood Vessels
  - F. Hair
  - G. Nails
  
- II. Physiology and Functions
  - A. Temperature Regulation
  - B. Ultraviolet Light
  - C. Skin Absorption
  - D. Defense Mechanisms
  
- III. Occupational Skin Disorders/Disease
  - A. Chemical
  - B. Mechanical
  - C. Physical
  - D. Biological
  - E. Botanical
  - F. Predisposition
  
- IV. Classifications of Skin Disease
  - A. Contact Dermatitis
  - B. Contact Urticaria/Latex Allergy
  - C. Photosensitivity
  - D. Occupational Acne
  - E. Pigmentary Abnormalities
  - F. Cutaneous Tumors
  - G. Nail Disease
  - H. Systemic Intoxication

- V. Burns
  - A. Nature of Chemical Burns
  - B. Classification of Burns/Complications
  
- VI. Diagnosis
  
- VII. Worker's Compensation
  - A. Diagnosis
  - B. Causation
  - C. Impairment Evaluation
  - D. Conclusions/Recommendations
  - E. Physical Examinations
  
- VIII. Prevention and Control
  - A. Environment
  - B. Monitoring and Control Technology
  - C. Personal Cleanliness
  - D. Barrier Creams
  - E. PPE
    - 1. Protective Equipment
    - 2. Fabrics
    - 3. Gloves
    - 4. Safety
  
- IX. Case Examples of Control

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**LECTURE NOTE OUTLINE – CHAPTER 4**

**WEEK 2**

- I. Anatomy
  - A. External Ear
  - B. Middle Ear
  - C. Inner Ear
  
- II. Pathology
  - A. External Ear
  - B. Middle Ear
  - C. Inner Ear
  
- III. Hearing Process
  
- IV. Hearing Measurement
  - A. Audiometer
  - B. Audiogram
  
- V. Effects of Noise Exposure
  - A. Noise-Induced Hearing Loss
  - B. Non-Auditory Effects of Noise
  
- VI. Communication
  - A. Loudness
  - B. Clarity
  - C. Speech Sounds
  - D. Background Noise
  - E. Quality of Life
  - F. Rehabilitation
  - G. Further Medical Evaluation
  
- VII. OSHA Hearing Conservation Program  
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**LECTURE NOTE OUTLINE – CHAPTER 5**

**WEEK 2**

- I. Anatomy
  - A. Eyeball
  - B. Retina
  - C. Binocular Vision
  
- II. Eye Problems
  - A. Specialists
  - B. Instruments
  - C. Eye Defects
    - 1. Farsightedness
    - 2. Nearsightedness
    - 3. Astigmatism
    - 4. Presbyopia
  
- III. Visual Performance
  - A. Visual Acuity
  - B. Dark Adaptation
  - C. Depth Perception
  - D. Color Vision
  
- IV. Eye Disorders
  - A. Conjunctivitis, etc.
  - B. Glaucoma
  - C. Cataracts
  - D. Excessive Brightness
  - E. Night Blindness
  - F. Eyestrain
  - G. Nystagmus

- V. Physical Hazards
  - A. Blows from Objects
  - B. Corneal Lacerations and Abrasions
  - C. Blink Reflex
  - D. Foreign Bodies
  - E. Thermal/Irradiation Burns
  - F. Chemical Hazards/Burns
  
- VI. Evaluation of Eye Hazards
  - A. First Aid
  - B. ANSI Z358.1-1990
  
- VII. Protective Equipment
  - A. ANSI Z87.1-1989
  - B. Impact Protection
  - C. Welding
  - D. Laser Beams
  - E. VDTs
  - F. Sunglasses
  - G. Contact Lenses
  - H. Comfort and Fit
  
- VIII. Vision Conservation Program
  - A. Environmental Survey
  - B. Vision Screening Program
  - C. Remedial Program
  - D. Professional Fitting and Follow-Up Procedures