



Principles of Industrial Hygiene (EPCT 1341)

Credit: 3 semester credit hours (lecture)

Prerequisite: Passed the writing portion of TSI or other accepted testing instrument.

Course Description

Concepts in threshold limits, dose response, and general recognition of occupational hazards, including sampling statistics, calibration and equipment use. A study of the control of occupational hazards and sample collection and evaluation methods.

Required Textbook and Materials

1. *Fundamentals of Industrial Hygiene* by Barbara A. Plog & Patricia J. Quinlan, 6th edition, NSC Press
 - a. ISBN number is 978-0-87912-312-3
2. One, 11/2 – 2 inch 3 ring binder with pockets
 - a. Notebook paper for binder
 - b. *Organization of notebook; contents should include:
 - Cover page with first and last name
 - Title of course
 - Day and time of weekly class meeting
 - Semester (example, “Spring 2019”)
 - Dividers labeled, syllabus, lectures notes, study questions, handouts, exams.
 - Calculator. Texas Instruments TI-30XA. **Other electronic media may not be used in place of a calculator during an exam.**
 - c. USB Flashdrive

Course Objectives

Upon completion of the course the student will be able to:

1. Explain terminology and discuss concepts of industrial hygiene and toxicology.
2. Describe the anatomy and function of the routes of entry.
3. Explain the workings of the major body systems.
4. Identify major health hazards found in the workplace and discuss their effects.
5. Apply threshold limit values and other appropriate workplace exposure standards.
6. Prepare a report based on research and investigation of an area of industrial hygiene.

Course Outline

- A. Welcome to LIT:
1. Introduction of faculty and students
 2. Expectations

- 3. Policies
- B. Industrial Hygiene
 - 1. What is it? (Overview)
 - 2. Federal Regulations
- C. Lungs
 - 1. Anatomy
 - 2. Respiration
 - 3. Hazards
 - 4. Natural defenses
 - 5. AMA guides for evaluating impairment
- D. Skin and Occupational Dermatitis
 - 1. Anatomy
 - 2. Physiology and functions
 - 3. Defense mechanisms
 - 4. Causes of occupational skin disease
 - 5. Predisposing factors
 - 6. Classification of occupational skin disease
 - 7. Prevention and control
- E. The Ears
 - 1. Anatomy and physiology
 - 2. The hearing process
 - 3. Effects of noise exposure
 - 4. Evaluating impairment (AMA Guides)
- F. The Eyes
 - 1. Anatomy
 - 2. Visual performance
 - 3. Physical Hazards
- G. Gases, Vapors, and Solvents
 - 1. Toxicological effects
 - 2. Physiological effects
- H. Industrial Toxicology
 - 1. Definition
 - 2. Routes of entry
 - 3. Dose-response relationship
 - 4. Timing: exposure and effect
 - 5. Systemic toxins
- I. Particulates
 - 1. Background/basic concepts, procedures, and examples
 - 2. Crystalline, structural, and isotopic nature
 - 3. Shape of the particles
 - 4. Sized of the particles
 - 5. Dose
 - 6. Concurrent exposure to other toxic agents
 - 7. Biological reactions

- J. Industrial Noise
 - 1. Hearing ability
 - 2. Risk factors
 - 3. Analysis of noise exposure
- K. Ionizing Radiation
 - 1. Ionizing radiation terms
 - 2. Biological effects of radiation
- L. Nonionizing Radiation
 - 1. Types of nonionizing radiation
 - 2. Biological effects
 - 3. Exposure standards
- M. Thermal Stress
 - 1. Degrees of thermal stress
 - 2. Recognition of heat stress
 - 3. Cold stress
- N. Biological Hazards
 - 1. Hazard identification
 - 2. Risk assessment
 - 3. Current topics in biosafety
 - 4. Bioterrorism

Grade Scale

A = 90-100

B = 80-89

C = 70-79

D = 60-69

F = Less than 60

*Notebooks will be graded the evening of the final.

Course Evaluation

Final grades will be calculated according to the following criteria:

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|---------------|-----|
| 1. Test I | 20% |
| 2. Test II | 20% |
| 3. Final | 35% |
| 4. Report | 15% |
| 5. Notebook | 5% |
| 6. Vocabulary | 5% |

Course Policies

- 1. No food, drinks, or use of tobacco products in class.
- 2. Computers, telephones, headphones, and any other electronic devices must be turned off while in class or used only with permission of the instructor.

3. Do not bring children to class.
4. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
5. Additional class policies as defined by the individual course instructor are in the addendum.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator, at (409) 880-1737 or visit her office located in the Cecil Beeson Building, room 116B.

**Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student's responsibility to communicate such needs to the instructor.

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document change.

