Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for OSH 60

ELEMENTS OF INDUSTRIAL HYGIENE

Effective: Fall 2018

I. CATALOG DESCRIPTION:
OSH 60 — ELEMENTS OF INDUSTRIAL HYGIENE — 3.00 units

Introduction to the major subject areas of Industrial Hygiene. This includes anticipation, recognition, evaluation, and control of workplace hazards; effects of toxic agents on the body; measurement of these agents; general methods for their control; as well as State and Federal regulatory requirements

3.00 Units Lecture

Grading Methods:
Letter Grade

Discipline:
- Industrial Safety

	MIN
Lecture Hours:	54.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Describe the function of field of industrial hygiene in context of occupational health and safety management
B. Recognize and categorize workplace hazards which are of industrial hygiene interest in a variety of workplaces
C. Identify and describe appropriate methods used to evaluate, correct and/or control workplace hazards
D. Explain how professional organizations and government agencies influence and affect the field of industrial hygiene
E. Review industrial hygiene regulations and regulatory trends
F. Explain the significance of industrial hygiene workplace hazards

V. CONTENT:
A. Historical introduction starting from the beginning of industrial hygiene to the present;
B. Routes of entry toxic material takes into the body including the respiratory tract, skin, and digestive systems; an anatomical review of each major organ system;
C. Toxicity of solvents, gases, and vapors with reference to their chemical structure and effects on the human body;
D. Toxicity of dusts with reference to their composition and effects on the lungs;
E. Noise: recognition, evaluation, and control;
F. Ionizing radiation: general description, health effects, measurement, and control;
G. Non-ionizing radiation: general description, health effects, measurement, and control, including welding;
H. General methods of detection and control of toxic and physical workplace agents;
I. Industrial ventilation: design principles, basic calculations, and applications to workplace requirements;
J. Personal protective equipment (e.g., respirators, chemical protective clothing) for protection against toxic and physical agents; workplace applications and program design;
K. Chemical hazards: injury causes, responsibility, and control methods;
L. Techniques of health hazard communication.

VI. METHODS OF INSTRUCTION:
A. **Discussion** - key topics related to industrial hygiene
B. **Student Presentations** - on topics related to industrial hygiene
C. **Lecture** - by instructor and guest speakers
D. Group work on problem solving
E. **Audio-visual Activity** - selected topics

VII. TYPICAL ASSIGNMENTS:
A. Read a chapter in the course text or handout material.
    1. Answer questions or apply the information to specific examples during the classroom presentation of this material each week.
B. Identify and describe the impact of typical workplace hazards.
    1. Describe the sampling methods used to evaluate these hazards, and the engineering controls used for their mitigation.
    2. Workplace situation presented every few weeks via videos or slides.

VIII. EVALUATION:

A. **Methods**

1. Exams/Tests
2. Quizzes
3. Research Projects
4. Papers
5. Oral Presentation
6. Class Participation
7. Home Work

B. **Frequency**

1. One term paper/oral presentation based on research project
2. Minimum of 4 quizzes
3. Midterm examination
4. Final examination
5. Weekly homework assignments
6. Participation in weekly classes

IX. TYPICAL TEXTS:

1. Arezes, Pedro. *Occupational Safety and Hygiene IV.* 1st ed., CRC Press, 2016.
2. Fuller, Thomas. *Essentials of Industrial Hygiene.* 1st ed., National Safety Council, 2015.
3. Spellman, Frank. *Industrial Hygiene Simplified* . 2nd ed., Bernan Press, 2017.
4. Plog, Barbara, and Patricia Quinlan. *Fundamentals of Industrial Hygiene.* 6th ed., National Safety Council, 2012.
5. Vincoli, Jeffrey. *Basic Guide to System Safety.* 3rd ed., John Wiley & Sons, Inc., 2014.

X. OTHER MATERIALS REQUIRED OF STUDENTS: