

OESM 105: Introduction to Industrial Hygiene

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Course Description:

The course introduces industrial hygiene principles of recognition, evaluation and control of hazards in the work environment. Topics covered include exposure guidelines for chemical, biological, and physical hazards. Emphasis is placed on planning strategies to identify hazards, environmental monitoring techniques, employee exposure evaluation, and application of control measures.

This class is the theoretical foundation for OESM 208, Industrial Hygiene Techniques, which focuses on the application & instrumentation of workplace hazard identification techniques.

Course Objectives:

Upon completion of the course, students are expected to be able to:

- Discuss the industrial hygiene concepts of recognition, evaluation and control of workplace hazards
- Describe the key elements of an industrial hygiene program and explain its relationship to other aspects of a company's overall safety program
- Explain mechanisms of toxin distribution, transformation, and excretion
- Discuss the application and limitations of workplace exposure limits
- Discuss types of airborne and physical hazards and appropriate sampling techniques
- Appropriately apply various hazard control techniques
- Compute relevant industrial hygiene parameters
- Apply the industrial hygiene principles to identify causes and recommend control measures

Required Textbook:

National Safety Council. *Fundamentals of Industrial Hygiene*. 5th edition + Study Guide

Selected References:

1. American Conference of Governmental Industrial Hygienists. *Threshold Limit Values for Chemical Substance and Physical Agents*. 2003 (or 2002).
2. American Industrial Hygiene Association. *The Occupational Environment - Its Evaluation and Control*. DiNardi SR (ed). 1997.
3. US Department of Labor. *OSHA Technical Manual*. 1990.
4. Nims, Debra K.. *Basics of Industrial Hygiene*. John Wiley & Sons. 1999.

Student Evaluation:

Students are expected to complete **all** of the following:

Weekly workshops

varies points

Attendance (2 points each day x 15 days)	30	points
Final Project	60	points
Paper: 40 points		
Presentation: 20 points		

Final grades are permanent. Final "I" grades will not be allowed in this class. Final "N" grades will be given only in very rare and exceptional cases.

All homework is due as specified in the syllabus. Each day homework is late will result in a full grade drop. You are responsible for getting the late homework to my Kaiser office.

HCC Grading Policies:

- a. *No Show Policy.* Students must attend both of the first two class sessions of the semester or may be dropped unless they notify the instructor or the Division Chair in advance of their absence.
- b. *Disappear Policy:* Students may receive an "F" grade if they do not drop their course by the drop deadline listed in the Academic Calendar of the current HCC catalogues or the schedule of classes

Emergency Procedures:

- a. Location of first aid kit: In the back of classroom by the sink
- b. Evacuation of building: Use Diamond Head and Ewa stairs and proceed to parking lot #2 (by the cafeteria). Assemble and wait for further instructions from the instructor.
- c. Medical Emergency:
 1. Call 911 for an ambulance. Give essential information:
 - Location -- building and room number, road to enter campus
 - Type of emergency and victim's condition
 - Your name and phone number.
 2. Call Security 284-1270 (cellular) or 271-4836
 - To notify that an ambulance has been summoned
 - To have Campus Security escort the ambulance to the location
 - To request other assistance

Services for Students with Disabilities:

Students with disabilities may obtain information on available services online at honolulu.hawaii.edu/disability.

For specific information, contact Student ACCESS at 844-2392, by e-mail at access@hcc.hawaii.edu, or by visiting the Student ACCESS Office in Bldg. 2, Room 409."

OESM 105: Introduction to Industrial Hygiene

WEEK	TOPIC	CHAPTER
1	Overview of Industrial Hygiene Exposure Limits Study Guide: Chapter #1	1
2	Workshop: Chemistry & Math	
3	Workshop: Using the Intranet	
4	Recognition of Hazards: Industrial Toxicology Study Guide Chapter #6	6
5	Recognition of Hazards: Gases, Vapors & Solvents Study Guide chapter #7	7
6	Recognition of Hazards: Particulates Study Guide Chapter #8	8
7	Recognition of Hazards: Industrial Noise Study Guide Chapter #9	9
8	Recognition of Hazards: Ionizing and Non-ionizing Radiation Study Guide Chapter 10 -11	10-11
9	Recognition of Hazards: Thermal Stress Study Guide Chapter #12	12
10	Recognition of Hazards: Ergonomics & Biological Hazards Study Guide Chapter #13 and 14	13 - 14
11	Evaluation of Hazards: Developing Industrial Hygiene Surveys Study Guide Chapter #15	15
12	Evaluation of Hazards: Air Sampling Study Guide Chapter #16	16
13	Evaluation of Hazards: Direct-Reading Instruments for Gases, Vapors and Particulates Study Guide Chapter #17	17
14	Control of Hazards: Engineering, Admin, PPE Study Guide Chapter #18, 19, 22	18, 19, 22
15	Project Presentations	
16	Project Presentations	

All homework (e.g., study guides, workshops etc.) is due the following week. Exception: Projects are due the day of class.