IH&S 561: Industrial Hygiene Engineering

Designation: Required

Course (catalog) description:
Introductory course in industrial hygiene with laboratory. Topic includes: recognition, evaluation, and control of occupational and environmental contaminants and physical agents; basic IH quantitative analysis; PPE selection and evaluation.

Prerequisites: Graduate standing or consent

Textbook(s) and/or other required material:
Lecture Text: Fundamentals of Industrial Hygiene, 5th Edition (2002): Edited by B. A. Plog, J. Niland and P. J. Quinlan; Published by the National Safety Council

Student learning outcomes:
1. Implement an industrial hygiene walkthrough survey and hazard assessment strategy (Program Outcome 1);
2. Recognize major classes of occupational and environmental contaminants and how to apply to them the basic industrial hygiene tenets of anticipation, recognition, evaluation and control (Program Outcome 1);
3. Calculate basic expressions of concentration using temperature and pressures corrections (Program Outcome 1& 2);
4. Quantitatively model worst case scenarios of exposures and to reduce sampling and analytical data to estimate time-weighted average exposures (Program Outcome 1, 2, & 3);
5. Understand the professional and ethical responsibilities and characteristics of the Industrial Hygiene profession to protect the health and safety of working men and women in global societies (Program Outcome 6 & 8)

Topics covered:

WK 1	Ch 1: Overview of Industrial Hygiene
WK 1,2	Ch 30,31: OS&H regulations
WK 2,4	Ch 2-5: Anatomy, physiology and pathology
WK 4,5	Ch 6: Industrial Toxicology
WK 6	Review of Physical Chemistry
WK 7	Ch 7: Gases, Vapors and Solvents
WK 8	Ch 8: Particulate Matter
WK 9	Ch 21: Heat and Cold Stress
WK 10	Ch 14: Biological Hazards

WK 11 Ch 15: Evaluation of Hazards

WK 11,12 Ch 16: Air Sampling

Wk 13 Ch 17: Direct Reading Instruments

Wk 13,14 IH Calculations

WK 15 Ch 22: Introduction to Respiratory Protection Program
1910.134 OSHA's Respirator Standard

Class schedule: Two 1.25-hr session per week

Laboratory schedule: One 3-hr session per week

Relationship of course to ABET program outcomes

Contributes to the following program outcomes that students will acquire:

1. an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice of industrial hygiene
2. the ability to apply knowledge of math, science, and Industrial Hygiene;
3. the ability to design and conduct experiments, analyze and interpret data, develop implementation strategies, shape recommendations so that results will be achieved and findings will be communicated effectively;
6. an understanding of professional and ethical responsibility and the broad education and a knowledge of contemporary issues necessary to understand the impact of solutions in a global and societal context;
8. the professional characteristics expected of a successful Industrial Hygienist.

Performance Metrics:

1. Faculty assessment of home works, projects, and exams.
2. Student self-assessment.

Method of Instruction

Includes 3 hours of lectures each week of the semester, except for class times set aside for exams, pop tests, laboratories, and review of homework. Includes at least one laboratory exercise.

Grading Elements, Weighting:

Grade Element	Weighting
Midterm	35%
Final	35%
Homework	15%
Laboratories and reports	15%

Grades

Letter Grade	A	B	C	D	F
Numerical grade	≥ 90	80-89	70-79	60-69	< 60

West Virginia University Policies

Academic Integrity

We are committed to the highest standards of academic integrity. In accord with University guidelines, we will take vigorous action against students who engage in cheating, plagiarism, forgery, misrepresentation, fraud, or other dishonest practices. Guilty students may receive penalties ranging from a grade of 'zero' on the assignment in question to an 'unforgivable F' in the course."

Inclusion

“The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Accessibility Services(304-293-6700). For more information on West Virginia University’s Diversity, Equity, and Inclusion initiatives, please seehttp://diversity.wvu.edu/."

Days of Special Concern.

WVU recognizes the diversity of its students, many of whom must be absent from class to participate in religious observances. Students must notify their instructors by the end of the third class meeting regarding religious observances that will affect their attendance. Further, students must abide by the attendance policy of their instructors as stated on their syllabi. Faculty will make reasonable accommodation for tests or field trips that a student misses as a result of religious observance.

Statement on Disability Accommodation

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Accessibility Services(304-293-6700). For more information on West Virginia University’s Diversity, Equity, and Inclusion initiatives, please seehttp://diversity.wvu.edu/."

Statement on Attendance

If a student is absent without an acceptable excuse on the day of a test or exam, the student will receive a zero on that test or exam.

Prepared by: Steven Guffey, PhD, C.I.H. Professor and I.H. Program Coordinator

Date: 8/9/17