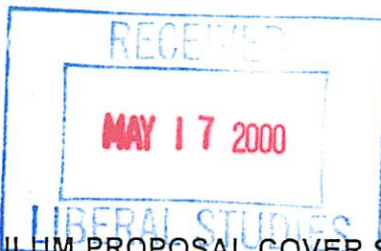


LSC Use Only
Number: _____
Submission Date: _____
Action-Date: _____



UWUCC USE Only
Number: 00-30
Submission Date: _____
Action-Date: UWUCC App 9/12/00
Senate App 11/17/00

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. CONTACT

Contact Person Dr. Anthony J. Joseph Phone 357-3800
Department Safety Sciences Department

II. PROPOSAL TYPE (Check All Appropriate Lines)



COURSE _____
Suggested 20 character title _____

_____ New Course* _____
Course Number and Full Title _____

Course Revision SA 301 Health Hazard Identification
Course Number and Full Title _____

_____ Liberal Studies Approval+ _____
for new or existing course Course Number and Full Title _____

_____ Course Deletion _____
Course Number and Full Title _____

_____ Number and/or Title Change _____
Old Number and/or Full Old Title _____
New Number and/or Full New Title _____

_____ Course or Catalog Description Change _____
Course Number and Full Title _____

_____ **PROGRAM:** _____ Major _____ Minor _____ Track

_____ New Program* _____
Program Name _____

_____ Program Revision* _____
Program Name _____

_____ Program Deletion* _____
Program Name _____

_____ Title Change _____
Old Program Name _____
New Program Name _____

III. Approvals (signatures and date)

[Signature] Department Curriculum Committee
Mary E. Seemke 5/10/00 College Curriculum Committee
Lon H. Ferguson Department Chair
Barbara P. Zoni College Dean

+ Director of Liberal Studies (where applicable)

*Provost (where applicable)

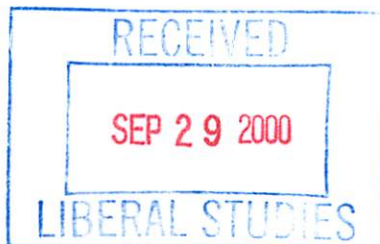
I. Catalog Description

SAFE 301 Health Hazard Identification

3 credits
0 lab hours
3 credit hours
(3c-01-3sh)

Prerequisites: CHEM 102, PHYS 111, MATH 121, BIOL 155

Provides an understanding of the primary health hazards found in industry and their effects on the human body. Students learn to recognize hazards involved with air contaminants, noise, heat, radiation, chemicals on the skin, and other stressors. Emphasis is placed on the study of occupational disease, industrial toxicology, and use of threshold limit values.



II: Description of the Curriculum Changes

B. Summary of Proposed Changes

1. Title: SAFE 301 Health Hazard Identification

No change

2. Catalog Description

Old Prerequisite: MATH 122

New Prerequisite: MATH 121

3. Course Objectives

Old:

- A. Students will have an understanding of the fundamentals, terminology, and concepts of industrial hygiene as they relate to health hazards identification.
- B. Students will be able to identify primary health hazards found in industry and their effects on the human body.
- C. Students will be able to identify appropriate workplace standards and threshold limit values.
- D. Students will demonstrate an understanding of the health hazards in the workplace.

New:

- A. Define terms used in industrial hygiene as they relate to health hazard identification in the workplace.
- B. Identify primary health hazards found in the workplace and their effects on the human body.
- C. Identify appropriate workplace standards and threshold limit values.
- D. Describe methods used in the identification of health hazards in the workplace.
- E. Interpret the signs and symptoms of exposure to health hazards in the workplace.

4. Course Outline

Adjusted hours per topic and included a new section L. Current Health Hazard Issues – 4 hours. This will include topics such as biohazards, barometric hazards, and indoor air quality.

5. Evaluation Methods

No change

6. Required Text

Updated the required textbooks.

7. Special Resource Requirements

No change

8. Bibliography

Reviewed and updated list

C. Justification/Rationale for the Revision

Prerequisite

To be consistent with the recently approved curriculum changes of the program. (Senate approval in May 2000).

Course Objectives

The objectives were rewritten to elaborate and clarify learning objectives, and affirm what the students will achieve because of taking this course in measurable terms.

Course Outline: New Section

To include health hazard issues/concerns that are current major concerns or emerging issues in the workplace. A major current issue is bio-safety, such as bloodborne pathogens, tuberculosis, indoor air quality, and legionnaires' disease. Within the past 10-15 years there has been an increase in the awareness of the potential hazards of biological agents. Note that the identification of the biological agent that caused Legionnaires' disease; the recognition of the AIDS (acquired immunodeficiency syndrome) epidemic; and the emergency of recombinant DNA (rDNA) technology as an industry and as a means to create goods and services; have all contributed to the increased interest and concern about biohazards among the general public and consequently, among occupational hygienists.

Required Text

To provide the best textbook available that provides adequate coverage of the topics in the course outline.

Bibliography

To provide a current list of resource materials used in the revision of this course.

PROPOSED SYLLABUS OF RECORD

I. Catalog Description

SAFE 301 Health Hazard Identification

3 credits
0 lab hours
3 lecture hours
(3c-01-3sh)

Prerequisites: CHEM 102, PHYS 111, MATH 121, BIOL 155

Provides an understanding of the primary health hazards found in industry and their effects on the human body. Students learn to recognize hazards involved with air contaminants, noise, heat, radiation, chemicals on the skin, and other stressors. Emphasis is placed on the study of occupational disease, industrial toxicology, and use of threshold limit values.

II. Course Objectives

Students completing this course will be able to:

- A. Define terms used in industrial hygiene as they relate to health hazard identification in the workplace.
- B. Identify primary health hazards found in the work place and their effects on the human body.
- C. Identify appropriate workplace standards and threshold limit values.
- D. Describe methods used in the identification of health hazards in the workplace.
- E. Interpret the signs and symptoms of exposure to health hazards in the workplace.

III. Course Outline

- A. Introduction (4 hours)
 - Overview of industrial hygiene related to the overall safety and health of workers.
 - Occupational health problem in U.S. industry with reference to specific chemicals and physical agents of greatest concern.
 - Exposure standards, scope, limitations, classification and development.
 - Introduction to industrial toxicology.
- B. Lung Anatomy and Physiology (3 hours)
 - Entry and toxic actions of chemical substances.
 - The structure and function of the human receptor system; the eye, ear, and skin, as they relate to uptake and elimination of toxic substances.
 - Routes of entry: Ingestion, skin absorption, and inhalation.
 - Mode of action: Action at the site contact, absorption into blood, on blood, absorption into tissue, and site of action.
 - Toxic action and toxicity data.

- C. Body Response to Inhaled Toxic Materials (3 hours)**
- The various types of responses which may result from inhalation to toxic substances, such as primary irritation, allergic reactions or sensitization
 - Pneumoconiosis
 - Systemic intoxication
 - Metal fume fever
 - Various Infections
 - Radioactive damage
 - Mutagenesis and cancer.
- D. Exposure to Aerosols in Industry (4 hours)**
- Exposure to air contaminants in industry
 - The chemical and physical properties of airborne particulate contaminants from metals, metalloid and organic solvents.
 - Particle size and its significance in terms of deposition in the respiratory tract.
 - Industrial sources of airborne particles and common diseases associated with aerosols exposure along with appropriate reference to permissible exposure limits.
- E. Inhalation of Gases and Vapors in Industry (8 hours)**
- Chemical and physical properties of common airborne gases and vapors.
 - Industrial sources, uses, and potential exposure situations.
 - The effects of exposure to gases and organic solvents including particles commonly encountered in industry.
- F. Chemical Carcinogens (3 hours)**
- A review of the chemistry and properties of substances recognized as having carcinogenic potential in human.
 - Examples of specific exposure situations resulting in increased risk of cancer.
 - Generalities about the relationship of cancer to chemical structure.
 - Current efforts of regulatory agencies to develop standards for control of carcinogens.
- G. Industrial Dermatoses (2 hours)**
- The structure and function of the skin and various factors affecting susceptibility to skin diseases.
 - The various types and causes of industrial dermatoses with reference to specific substances causing skin related diseases
- H. Biothermal in Industry (2 hours)**
- The modes of heat exchange between the worker and his environment, and the factors affecting this exchange.
 - Relative importance of convective, radiant, and metabolic heat loads.
 - The defenses and responses of the body to the thermal environment and effects of overexposure.
 - Sources of heat stress and need for acclimatization.

- I. Exposure to Noise in Industry (3 hours)
- Exposure to noise in industry
 - The physics of sound and the various types of noise,
 - The structure and function of the human hearing mechanism.
 - Auditory sensitivity and the effects of exposure to excessive noise.
 - Sources of noise in industry.
- J. Exposure to Non-ionizing Radiation (3 hours)
- Definitions of the various types of non-ionizing radiation.
 - Review of the physics of radiation.
 - The common sources of non-ionizing radiation
 - Specific hazards and exposure such as ultraviolet, lasers, infrared, microwave, radar and radio frequency (RF) radiation.
- K. Exposure to Ionizing Radiation (3 hours)
- Exposure to ionizing radiation.
 - Definitions of the various types of ionizing radiation.
 - Sources of exposure in industry.
 - A brief review of atomic physics as it relates to human response to ionization radiation.
- L. Current Health Hazard Issues (4 hours)
- Present trends and developments in occupational health technology.
 - Indoor air quality.
 - Biohazards.
- M. Final Examination (2 hours)

IV. Evaluation Methods

The final grade will be determined by using any combination of at least four (4) evaluation methods, weighted as determined by the individual faculty member. For example:

- A. Exams 45%
- There will be two written exams in addition to a final exam. These exams will consist of no more than 150 questions comprising of a combination of multiple choice, true/false, matching, completion, and short essay questions.
- B. In class exercises 20%
- Period quizzes and calculations will be given. These quizzes will consist of combinations of multiple choice, true/false, matching, and completion. The calculations will involve determining exposure and compliance to workplace standards and threshold limit values.

- C. Homework 10%
Periodic out-of-classroom assignments consisting of short answer questions related to identifying health hazards in the workplace will be given.
- D. Term Papers/ Projects 10%
Students will prepare a report on how to identify a specific health hazard in a specific industry.
- E. Presentations 5%
Students will orally present their term project to the class, and answer questions that arising from the presentation.
- G. Participation 10%
Each student will provide active engagement in the classroom.

The grading scale will be based on the following:

- A = 90-100%
- B = 80-89%
- C = 70-79%
- D = 60-69%
- F < 60%

V. Required Text

Plog, B.A. and J.B. Schonfled (editors). Fundamentals of Industrial Hygiene, 4th edition or latest. National Safety Council, 1999.

Threshold Limit Values. American Conference of Governmental Industrial Hygienists (ACGIH), latest edition.

VI. Special Resource Requirements

Scientific calculator and semi-log graph paper.

VII. Bibliography

Burgess, W. A. Recognition of Health Hazards in Industry, 2nd Edition. John Wiley & Sons, Inc., New York, NY, 1995.

Dinardi, S.R. (editor). The Occupational Environment – Its Evaluation and Control. American Industrial Hygiene Association, Fairfax, VA, 1997.

Koln, J. P. et al. Fundamentals of Occupational Safety and Health. Government Institutes, Rockville, MD, 1996

Levy, B.S. and D.H. Wegman (editors). Occupational Health, 3rd Edition. Little, Brown, and Company, New York, NY, 1995

Stern, M. B. and S. Z. Mansdorf. Applications and Computational Elements of Industrial Hygiene. CRC Press, Boca Raton, FL, 1998.

Historical Reference

Everly, G.S. and R.H.L. Feldman. Occupational Health Promotion. John Wiley & Sons, Inc., New York, NY, 1985.

Peterson, Jack E. Industrial Health, 2nd Edition. American Conference of Governmental Industrial Hygienists, Inc., Cincinnati, OH, 1992.

Old Syllabus of Record

SYLLABUS OF RECORD

I. Catalog Description

SA 301 Health Hazard Identification

3c-01-3sh

Prerequisites: CH 102, PY 111, MA 122, BI 155

Provides an understanding of the primary health hazards found in industry and their effects on the human body. Students learn to recognize hazards involved with air contaminants, noise, heat, radiation, chemicals on the skin, and other stressors. Emphasis is placed on the study of occupational disease, industrial toxicology, and use of threshold limit values.

II. Course Objectives

- A. Students will have an understanding of the fundamentals, terminology and concepts of industrial hygiene as they relate to health hazards identification.
- B. Students will be able to identify primary health hazards found in industry and their effects on the human body.
- C. Students will be able to identify appropriate workplace standards and threshold limit values.
- D. Students will demonstrate an understanding of the health hazards in the workplace.

III. Course Outline

- A. Introduction (5 hours)
- B. Lung Anatomy and Physiology (4 hours)
- C. Body Response to Inhaled Toxic Materials (3 hours)
- D. Exposure to Aerosols in Industry (4 hours)
- E. Inhalation of Gases and Vapors in Industry (8 hours)
- F. Chemical Carcinogens (3 hours)
- G. Industrial Dermatoses (2 hours)
- H. Heat Stress in Industry (3 hours)
- I. Exposure to Noise in Industry (3 hours)
- J. Exposure to Non-ionizing Radiation (3 hours)

K. Exposure to Ionizing Radiation (4 hours)

IV. Evaluation Methods

The final grade will be determined by using any combination of at least four(4) of the following evaluation methods within the range of weights shown as determined by the individual faculty member and which must total 100%.

- 0-60% Exams There will be a minimum of two written exams consisting of combinations of multiple choice, true/false, matching, completion, and essay questions; or other interactive exams. Make-up exams are at the discretion of the individual faculty member.
- 0-25% Quizzes Periodic quizzes will be given. Some individual faculty members may utilize unannounced quizzes. Make-up quizzes are at the discretion of the individual faculty member.
- 0-15% Homework Periodic out-of-classroom assignments will be given.
- 0-40% Term Papers/
 Projects Each student will prepare formal papers or projects on a topic approved by the individual faculty member.
- 0-20% In-Class Writing Each student will prepare various assignments in class utilizing free-style writing techniques as scheduled by the individual faculty member.
- 0-25% Presentations Each student will participate in an oral presentation topic approved by the individual faculty member.
- 0-20% Participation Each student will provide active engagement in the classroom.
- 0-25% Group Activity Students will be assigned various activities requiring a collaborative effort with other students.

Extra credit can be assigned to any one of the above evaluation methods at the discretion of the instructor.

The grading scale will be based on the following:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	< 60%

or, at the discretion of the faculty member a grading curve that results in a normal distribution of grades.

V. Required Textbooks

Peterson, Jack E. "Industrial Health," American Conference of Governmental Industrial Hygienists, Inc., Cincinnati, OH, 2nd Edition, 1991.

Plog, B.A. and Schonfeld, J.B. (editors). "Fundamentals of Industrial Hygiene," National Safety Council, 3rd edition, 1988.

Threshold Limit Values, American Conference of Governmental Industrial Hygienists (ACGIH) (Latest Edition).

VI. Special Resource Requirements

Scientific calculator and semi-log graph paper.

VII. Bibliography

William P.L. and Burson, J.L. (editors) "Industrial Toxicology-Safety and Health Applications in the Workplace," Van Nostrand Reinhold, NY (1985).

Isman, E.W. and Carlson, G.P. "Hazardous Materials," MacMillan Publishing Co. Inc., NY (1980).

Sackheim, G.I. and Shultz, R.M. "Chemistry for the Health Sciences," MacMillan Publishing Co. Inc., NY (1980).