

**Illinois IDEA HS
Course Outline
Summer 2009**

College/Division: Chicago State University, Technology Education Program

Course Title: Supervision of Industrial Safety

Course Designator/Number: IT 4385/6385

Credit Hours: 3

Instructor/Originator Name: Dr. Moussa Ayyash

Catalog Description: History and growth of occupational safety and health in the American workplace as it relates primarily to policy and statute resulting from the Occupational Safety and Health Act (OSHA) of 1970. Workman's compensation insurance, accident records, injury rates, accident investigation, analysis and cost, safety programs as well as specific industrial and occupational safety problems are covered. This is a writing emphasis course.

Prerequisites: None

Restrictions/Suggestions:

1. High-speed Internet access to be able to login to the course shell via CSU's Blackboard. Each student will be given a Blackboard account through CSU's Information Technology department (1-773-995-2000).
2. Working email address.
3. Microsoft Office Suite (2003 or 2007): Word and Power Point.

Rationale: The course is designed to develop and increase awareness of safety and health practices in industry. These practices represent an important component of homeland security education especially in industrial and developed societies. The course provides the necessary knowledge that connects with emergency preparedness and disaster management. Each case study will address an outcome of the alliance outcomes. Additionally, each case study will be designed to reflect on current safety practices.

Intended Audience: Wide range of students who are interested in homeland security; especially those who are interested in gaining knowledge about emergency preparedness and disaster management in the industrial sector.

Expected Student Outcomes

This course is designed to develop and increase awareness of safety and health practices. Some of the information presented is based on past practices. However,

because of the rapid changes that continuously occur; much of the information provided in the course is based on recent research and developments in health and safety. Upon completion of this course, students will:

1. *Synthesize* health and safety information in order and create a safe and healthy work and learning environment.
2. *Evaluate* information about factors that contribute to safe and healthy living and working environment.
3. *Comprehend* factors that play a key role in effecting legal provisions designed to ensure a healthy and safe work workplace.
4. *Direct* student to and aid them in utilizing research tools needed to keep abreast of developments in the health and safety field.
5. *Apply* various techniques that utilize community resources to create and a safe and healthy environment.
6. *Display* knowledge the role played by health and safety management in maintaining quality of life in contemporary and historical environments.
7. *Develop* an awareness of psychological factor and learning processes that play a key role in implementing an effective health and/or safety program.

Course Objective	Related- ITEA/Committee on Technology Teacher Education Standards	Related ISBE—Technology Education Standards for Educators
1. <i>Synthesize</i> health and safety information in order and create a safe and healthy work and learning environment.	2i2. Make decisions based on knowledge of intended and unintended effects of technology on society and the environment.	2M. Plans, organizes, and manages laboratories/technical facilities for instruction, which meet diverse needs of students (i.e., safety, inventory, filing, requisitioning equipment and materials, maintenance, budgeting). 10O. Selects and safely uses appropriate tools, machines, and equipment to process materials to produce useful products.
2. <i>Evaluate</i> information about factors that contribute to safe and healthy living and working environment.	2p1. Judge the effects of technology on the environment.	5J. Demonstrates the ability to investigate, generate, and select ideas to plan an optimum design that takes into account knowledge of constraints and criteria obtained from research
3. <i>Comprehend</i> factors that play a key role in effecting legal provisions designed to ensure a healthy and safe work		2N. Implements laws and policies relating to safe environments and incorporates appropriate safety standards, healthy practices, and ergonomic needs

<p>workplace. 4. Direct student to and aid them in utilizing research tools needed to keep abreast of developments in the health and safety field.</p>		
<p>5. Apply various techniques that utilize community resources to create and a safe and healthy environment.</p>	<p>8d1. Exhibit safe technology laboratory practice by designing, managing, and maintaining physically safe technology learning environments.</p>	<p>6M. Implements the appropriate safety precautions for the personal safety of themselves and others. 7K. Safely operates and manages systems according to the function for which they have been designed.</p>
<p>6. Display knowledge the role played by health and safety management in maintaining quality of life in contemporary and historical environments. 7. Develop an awareness of psychological factor and learning processes that play a key role in implementing an effective health and/or safety program.</p>	<p>1d1. Comprehend the nature of technology in a way that demonstrates sensitivity to the positive and negative aspects of technology in our world</p>	<p>6A. Understands that developing and producing a product or system involves learning the safe and proper use of resources following instructions, and troubleshooting to determine if a design works or if there is a need for redesign. 6F. Understands that quality, safety, and ergonomic design principles (e.g., enhancement of quality of life, productivity, safety, and convenience) influence the development of products and systems. 8D. Understands that human factors, including the principles of safety, health, and comfort, are important in evaluating the impact and consequences of technology. 10F. Understands that the language of industry involves the use of symbols and signs to identify potential hazards, specific technological data, and environmental conditions.</p>

Text: *Industrial Safety and Health Management*, Asfahl, Ray C., Pearson (Prentice-Hall) Education, Inc., 2004, ISBN: 0-13-142392-4.

Topical/Subject Matter Outline/Course Content:

Upon completion of this course, all learners will demonstrate their mastery by:

Session--Topic	Unit Objectives	Assessment Activity
1-The Safety and Health Manager	Explain how the field of health and safety management has been defined over time by natural disasters and man-made disasters, and policy implementation.	Respond to Exercises and Study Questions—Place in Digital Drop Box
2—Health and Safety Function	Describe how health and safety managers perform their responsibilities within an organization.	Case Study 2-1
3 –Hazard Avoidance	Describe the basic approaches to reducing hazards in the workplace	Case Study 3-7
4—Impact of Legislation and Regulation	Describe the positive and negative aspects of health and safety patrolling agencies such as Occupational Health and Safety Agency (OSHA) and the Environmental Protection Agency (EPA)	Chapter 4--Research Exercise 4.31 and 4.36
5—Information Systems	Research the current development in managing and making accessible volumes of detailed data to protect workers from workplace hazards	Case Study 5-3.
6. Process Safety and Disaster Preparedness	Design a systematic approach to preparing for disasters	Chapter 6— Research Exercise 6-27 (Disaster Preparedness)
7. Buildings and Facilities	Develop and implement a building safety plan.	*See Shop Safety Analysis Assignment Below
8. Ergonomics	Devise an ergonomics program that fits the operations of a particular firm.	Case Study 8-1
9. Environmental Contaminants--Health and Toxic Substances and Noise	Measure the level of various air contaminants, evaluate the effect of on the human body, and develop strategies for deal	Case Study 10-1
10—Flammables and Explosives	Develop a plan that engages public and private community resources in dealing with hazardous materials.	Case Study 11-2
11—Personal	Design a plan to engineer those	Case Study 12-3

Protection—Fire, First Aid	hazards out of the workplace that potentially lead to the necessity to wear personal protective equipment.	
12—Material Handling	Describe the basic and specific techniques for handling specific types of materials	Case Study 14-1
13—Safe Guarding Machines	Identify direct and indirect hazards when working with machines	Case Study 15-3
14—Explosive and Electrical Hazards	Identify violations and situations that prevent explosive and electrical hazards.	Case Study 16-1

Course Calendar:

Week	Date	Discussion Topic	Student
1	TBD	Intro to Course Week Safety and Health Manager Development of the Safety and Health Function	Chapter questions due by next class meeting Case Study 2.1
2	TBD	Concepts of Hazardous Avoidance Pod Cast Only/ Post Discussion Thread 1	Respond to Thread 1- Chapter questions due by next class meeting Case Study 3.7
3	TBD	Impact of Federal Regulations Information Systems Process Safety Quiz	Take Quiz- No Virtual Class Chapter questions due by next class meeting Case Study
4	TBD	Buildings and Facilities Health and Toxic Substances	Chapters questions due by next class meeting Case Study
5	TBD	Pod Cast Only/Post Discussion Thread 2 Environmental Control and Noise	Respond to Thread 2- Journal Abstracts Due Chapter questions due by next class meeting Case Study
6	TBD	Flammable and Explosive Materials Personal Protection and First Aid; Fire Protection	Chapters questions due by next class meeting Case Study

7	TBD	Materials Handling and Storage; Welding	Chapter questions due by next class meeting Case Study
8	TBD	Electrical Hazards	Chapter questions due by next class meeting Graduate Book Review Due
9	TBD	Construction	Chapter questions due by next class meeting Case Study
10	TBD	Pod cast only/Post Discussion Thread 3	Respond to Thread 3 Post Final Exam and Course Evaluation

Course Activities:

1. Safety Interview: Each student will identify a person who is in charge of health and safety at a business/industrial concern. S/he will interview that person (in person--not by telephone). The company where the interviewee works should have at least 10 employees and a defined safety program. The instructor must approve of the student's choice of company. Students will be provided an interview guide to help them organize questions. Upon completion of the interview, each student must post their interview information to the class as well as submit a synthesis of the interview to the instructor in the form of a typewritten report. The report should not be a direct transcription of the interview. The evaluation will be based upon the following: (a) Substance of questions designed for the interview; (b) Oral presentation given by student; (c) Clarity and grammatical correctness of written report. Students will select the date they wish to orally present their interview. The written report is due on the date the oral presentation is delivered. Late written reports will have points deducted.

2. Journal Abstracts- Each student will write and submit one to two-page journal abstract. Articles should be selected from refereed research journals or professional publications on the World Wide Web; *periodical and newspaper articles will not be accepted.* Each abstract should be prepared as a typewritten summary that discusses health and/or safety issues presented in the article selected. The typewritten summary is to be double-spaced, presented in the student's own words, and be concise and grammatically correct. It should include a bibliographic reference (illustrated below) at the top of the first page. *A copy of the article reviewed should be turned in (scanned) with each abstract.* Evaluation will be based on depth of summary, grammatical correctness, and evidence of the student's ability to synthesize the information provided in the article and to present the information in proper format. Late abstracts will receive a 50% reduction, and will only be accepted during the class session following the due date.

Student's Name	Abstract #	Date
Author's Name, Title of Journal Article, Title of Journal, Volume, Date, Page #s. Give a summary of the article selected by describing what the author discussed in the article, the research technique used, the population researched, if any, findings, conclusions and recommendations.		
Use your own words. Be sure to use your own words and do not plagiarize.		

Sample Journal Abstract (First Page)

3. Graduate Book Review: Graduate students enrolled in this course should read and review a book that covers a topic related to health and/or safety. The review should be no more than three (3) type double-spaced pages in length. The book reviewed should not be the textbook used for this class. The instructor must approve the book to be reviewed. The review should follow the format of the sample journal abstract shown above. Late book reviews will have points deducted.

4. Safety Quiz: Each student will take a safety quiz covering selected topics. The quiz will be posted in blackboard.

5. Student Prepared Questions: Each student will prepare 17 multiple choice questions for the course. One question should be taken from each chapter (1 through 17) in the textbook. Each question should be typewritten and submitted into the instructor's digital drop box, and have four choices from which answers can be selected. None of the above, All of the above, A & B above, and other similar choices should not be used for any question. Each question should contain the student's name, chapter from which the question was taken, the date the question was due and the date the question was submitted. All late questions will receive a 50% point reduction. A sample question is shown below.

Evaluation/Assessment:

Each student's grade will be calculated based on the following weighing scale:

Lower %	Upper%	Grade
92	100	A
81	91	B
70	80	C
60	69	D
Below 60		F

Undergraduate students who are performing below a 'C' will receive a Midterm Grade. An acceptable grade at midterm does not guarantee a similar final grade, nor does a poor midterm grade necessarily predict an unacceptable final grade. Students are

expected to complete all scheduled quizzes prior to the midterm. No Incompletes will be given unless the student is able to prove extenuating circumstances (hospital, death).

Students will be assessed based on the following grade distribution scale:

Item	Undergraduate %	Graduate %
Safety Interview	15	10
Journal Abstract	15	10
Quiz (Chapters 1-7)	10	10
Final Exam (Chapters 8-15)	15	10
Graduate Book Review	NA	15
Case Studies and Chapter Attendance Assignments (Submitted via Blackboard's Digital Drop Box and Summary Placed on Discussion Board)	35	35
Student Prepared Questions	10	10
Total	100	100

Bibliography/References: