



Course Description

Review of principles and best practices related to management of hazardous materials and wastes in the workplace. Covers OSHA, EPA, and DOT requirements regarding labeling, handling, and transportation of hazardous materials as well as hazard communication and training in the workplace. Hazardous material spill response is also discussed.

Course Textbook

Haight, J. M. (Ed.). (2012). *Hazardous material management and hazard communication*. Des Plaines, IL: American Society of Safety Engineers.

Course Learning Outcomes

Upon completion of this course, students should be able to:

1. Identify and apply the regulations and standards that govern the management of hazardous material and hazardous waste in the workplace.
2. Explain the hazard communication requirements for hazardous material used in the workplace.
3. Demonstrate the ability to develop an effective hazard communication training program.
4. Design and implement a hazardous materials spill response plan.
5. Apply industry best practices to benchmark and measure the effectiveness of a hazardous material/hazardous waste management program.

Credits

Upon completion of this course, the students will earn three (3) hours of college credit.

Course Structure

1. **Unit Learning Outcomes:** Each unit contains Unit Learning Outcomes that specify the measurable skills and knowledge students should gain upon completion of the unit.
2. **Unit Lesson:** Each unit contains a Unit Lesson, which discusses unit material.
3. **Reading Assignments:** Each unit contains Reading Assignments from one or more chapters from the textbook. Supplemental Readings are provided in the unit study guides to aid students in their course of study. Suggested Further Readings are listed in the Unit VI study guide. The readings themselves are not provided in the course, but students are encouraged to read the resources listed if the opportunity arises as they have valuable information that expands upon the lesson material.
4. **Key Terms:** Key Terms are intended to guide students in their course of study. Students should pay particular attention to Key Terms as they represent important concepts within the unit material and reading.
5. **Learning Activities (Non-Graded):** These non-graded Learning Activities are provided in Units I-VII to aid students in their course of study.
6. **Discussion Boards:** Discussion Boards are part of all CSU term courses. More information and specifications can be found in the Student Resources link listed in the Course Menu bar.
7. **Unit Assessments:** This course contains seven Unit Assessments, one to be completed at the end of Units I-VII. Assessments are composed of written response questions.
8. **Unit Assignments:** Students are required to submit for grading Unit Assignments in Units III and VI. Specific information and instructions regarding these assignments are provided below. Grading rubrics are included with both assignments. Specific information about accessing these rubrics is provided below.

9. **Course Project:** Students are required to submit for grading a Course Project in Unit VIII. Specific information and instructions regarding this assignment are provided below. A grading rubric is included with this assignment. Specific information for accessing this rubric is included below.
10. **Ask the Professor:** This communication forum provides you with an opportunity to ask your professor general or course content related questions.
11. **Student Break Room:** This communication forum allows for casual conversation with your classmates.

CSU Online Library

The CSU Online Library is available to support your courses and programs. The online library includes databases, journals, e-books, and research guides. These resources are always accessible and can be reached through the library webpage. To access the library, log into the myCSU Student Portal, and click on “CSU Online Library.” You can also access the CSU Online Library from the “My Library” button on the course menu for each course in Blackboard.

The CSU Online Library offers several reference services. E-mail (library@columbiasouthern.edu) and telephone (1.877.268.8046) assistance is available Monday – Thursday from 8 am to 5 pm and Friday from 8 am to 3 pm. The library’s chat reference service, *Ask a Librarian*, is available 24/7; look for the chat box on the online library page.

Librarians can help you develop your research plan or assist you in finding relevant, appropriate, and timely information. Reference requests can include customized keyword search strategies, links to articles, database help, and other services.

Unit Assignments

Unit III Case Study

You have been hired as a consultant by your town’s emergency management coordinator to help develop emergency action plans. One of the reasons you were selected is your expertise in using the General Behavior Model (GEBMO) to assess risks. Your first task is to assess the hazardous material risks at a local gas station. The station has one 30,000-gallon underground storage tank compartmentalized to hold 10,000 gallons each of the three gasoline grades, and there is one additional 10,000-gallon tank for diesel fuel. The station has four pumps, and each one can deliver all four products. Also on site is a 2,500 sq. ft. concrete block building used for the cashier and retail sales of service station and convenience store items.

The station is located at a busy intersection near the center of town. It is adjacent to several other local businesses that do a brisk business during the day. Across the street from the station is a large housing development with an elementary school. Behind the station is a city park with playgrounds, baseball fields, and a large wooded area.

Use the GEBMO framework to assess the risks related to the fuels in the underground tanks. Consider physical, chemical, and natural hazards that may contribute to the risks.

1. Discuss how you applied each of the steps in the GEBMO process and what risks you identified.
2. Provide recommendations for preventing spills or releases.
3. Discuss response actions required in the event of a spill or release.

Support your discussion with appropriate references and in-text citations. Your submission must be a minimum of two pages and a maximum of four pages in length.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

Unit VI Case Study

Read the following scenario, and answer the questions following each section:

The Dosit Corporation is a chemical manufacturer, and its products are sold to other manufacturers and used in household cleaning products. The company has 290 employees with about 220 involved in the production process, 30 working as maintenance personnel, and the remainder in clerical, sales, engineering, and senior management positions.

The company has never had a safety manager before it recently hiring you. The company president instructed you to find out what is wrong regarding safety and health and then to fix it. Several binders and files have been given to you with the explanation that they are the existing safety policies and records. Looking through one folder, you find a chemical inventory list from two years ago that included 780 chemicals. You find no records of hazard communication training, and the existing written program is very minimal and inadequate. You also look at the MSDS/SDS files and find considerably fewer than 780 MSDS/SDSs.

Question 1. What steps should you take to bring the company into compliance with the HCS considering best practices?

You went on a tour of your company's chemical processing area with the production foreman. As with any such operations, there are pipes going everywhere and numerous tanks. You noticed that few of the pipes and none of the tanks have visible labels indicating what is in the tanks or pipes.

Question 2a. Is this a problem from a safety or regulatory point of view? Why?

Question 2b. What would be your recommendation on labeling considering the regulatory requirements?

You have just finished training the entire workforce about chemical hazards. The training was not well received by the workforce, and they generally appeared to be bored; end-of-class quizzes indicated that they did not really grasp the essential information. You do not understand how this could be because you carefully went over the MSDS/SDS for each chemical that a given group of workers were potentially exposed to and explained in detail the precautions they needed to take.

Question 3a. What most likely went wrong in this training?

Question 3b. How could future training be improved, including the explanation of chemical hazards without specifically addressing each chemical?

During the inventory, you find a quart can of a chemical with a label in the maintenance shop. You find out that the shop personnel only use it occasionally and for unfreezing rusted bolts. They do not seem to know anything about the chemical's potential hazards, and the wording on the container is not totally legible, so you are not sure what the hazards are either.

Question 4a. How would you find out about the proper use, storage, and disposal of this chemical?

Question 4b. How would you identify the chemical as hazardous, or as not hazardous?

During an inventory, you come across an unlabeled five-gallon container of a chemical on which someone has written a chemical name.

Question 5. What should you do, if anything, about this container?

Use complete sentences when formulating your responses, and use APA format when writing your responses. Your paper must be a minimum of two pages in length, not including title and reference pages. Provide examples in your discussions, and support your answers with appropriate references and in-text citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

Unit VIII Course Project

University Case Study

Congratulations! You have just become the safety manager for Podunk University. Your position is at the campus in Podunk, Colorado, and your predecessor left the job a year and a half ago. There has been nobody in the position during that interval. The commitment of the institution to safety is dubious at best, but you are looking forward to starting your new position and making a positive change.

After introducing yourself to the secretary you share with a half dozen other, more senior, people, you decide to focus on hazardous material and hazardous waste issues since you just completed a great college course on those topics. You tour the campus and discover that the following departments and programs are yours to deal with:

- The biology department has animal dissection, human dissection, a microbiology lab, and a medical laboratory education program that uses small quantities of a lot of chemicals.
- The chemistry department has chemicals that have never been inventoried and a new forensics program (as in CSI, not in college debate).

- The physics department has high-voltage equipment, lasers, and LEDs.
- The English department has lots and lots of books and papers, as well as photocopiers.
- The math department has lots of computers and whiteboards.
- The automotive technology department has everything pertaining to auto repair, including solvents, asbestos brake linings, pneumatic tools, waste oil, and cutting and grinding tools.
- The Massive Arena is one of the original buildings on campus and has a variety of interesting problems, including asbestos insulation, and the building is undergoing a massive renovation.

Respond to each of the following questions:

1. Where do you start?
2. Where should you focus your initial HazCom efforts? In what order do you tackle the rest of the departments?
3. What are the HazCom issues in the automotive technology department?
4. What are the hazardous waste issues in the automotive technology department?
5. What are the HazCom issues in the chemistry department?
6. What are the hazardous waste issues in the chemistry department?
7. With the Massive Arena renovation, who are the people to whom you need to communicate hazards?
8. What are your main concerns with the physics department?
9. What are the hazardous material/waste spill response issues for the university, and how should you prepare for them?
10. Is any HazCom training needed for the English and math departments?
11. What are some resources for finding out how to solve the HazCom issues?
12. You must choose technology or trainers to do the needed training. What are some issues to consider when selecting these?
13. Due to budget cuts, you have to do the training yourself, and you will use PowerPoint. What are some considerations when developing your PowerPoint Presentation?
14. How can you evaluate your training to ensure that it is accomplishing your goals?
15. One of the chemistry professors working with some of the automotive technology faculty members, invents a new nonflammable compound that will render obsolete the need for solvents to degrease auto parts. She wants to market the stuff. What needs to be done before it can be marketed, and who should do it?
16. The University decides to partner with the chemistry professor and market this new compound. Due to the lack of flammability, it is a great hit nationwide. They then decide to market it worldwide. What concerns need to be addressed?
17. It turns out that this wonderful new compound makes a really great explosion when used in conjunction with another chemical. As the University is manufacturing the compound in large quantities and storing it on the grounds, what concerns do you now have? What experts should you consult?
18. The biology department has been busy as well. The little microbiology lab is large now, and they are working with stronger pathogens. How would you determine the new hazard communication requirements and things that you should do beyond that minimum?

After a tough five years, you have the Podunk University campus running smoothly. Everybody is trained, and your successor will not have nearly as much of a challenge as you did. Congratulations, and best wishes on your next challenge!

Your submission must be a minimum of four pages double-spaced, not including the title and reference pages, and in APA format. Support your answers to the questions with appropriate references and in-text citations.

Information about accessing the Blackboard Grading Rubric for this assignment is provided below.

APA Guidelines

The application of the APA writing style shall be practical, functional, and appropriate to each academic level, with the primary purpose being the documentation (citation) of sources. CSU requires that students use APA style for certain papers and projects. Students should always carefully read and follow assignment directions and review the associated grading rubric when available. Students can find CSU's Citation Guide by clicking [here](#). This document includes examples and sample papers and provides information on how to contact the CSU Success Center.

Grading Rubrics

This course utilizes analytic grading rubrics as tools for your professor in assigning grades for all learning activities. Each rubric serves as a guide that communicates the expectations of the learning activity and describes the criteria for each level of achievement. In addition, a rubric is a reference tool that lists evaluation criteria and can help you organize your efforts to meet the requirements of that learning activity. It is imperative for you to familiarize yourself with these rubrics because these are the primary tools your professor uses for assessing learning activities.

Rubric categories include: (1) Discussion Board, (2) Assessment (Written Response), and (3) Assignment. However, it is possible that not all of the listed rubric types will be used in a single course (e.g., some courses may not have Assessments).

The Discussion Board rubric can be found within Unit I's Discussion Board submission instructions.

The Assessment (Written Response) rubric can be found embedded in a link within the directions for each Unit Assessment. However, these rubrics will only be used when written-response questions appear within the Assessment.

Each Assignment type (e.g., article critique, case study, research paper) will have its own rubric. The Assignment rubrics are built into Blackboard, allowing students to review them prior to beginning the Assignment and again once the Assignment has been scored. This rubric can be accessed via the Assignment link located within the unit where it is to be submitted. Students may also access the rubric through the course menu by selecting "Tools" and then "My Grades."

Again, it is vitally important for you to become familiar with these rubrics because their application to your Discussion Boards, Assessments, and Assignments is the method by which your instructor assigns all grades.

Communication Forums

These are non-graded discussion forums that allow you to communicate with your professor and other students. Participation in these discussion forums is encouraged, but not required. You can access these forums with the buttons in the Course Menu. Instructions for subscribing/unsubscribing to these forums are provided below.

[Click here for instructions on how to subscribe/unsubscribe and post to the Communication Forums.](#)

Ask the Professor

This communication forum provides you with an opportunity to ask your professor general or course content questions. Questions may focus on Blackboard locations of online course components, textbook or course content elaboration, additional guidance on assessment requirements, or general advice from other students.

Questions that are specific in nature, such as inquiries regarding assessment/assignment grades or personal accommodation requests, are NOT to be posted on this forum. If you have questions, comments, or concerns of a non-public nature, please feel free to email your professor. Responses to your post will be addressed or emailed by the professor within 48 hours.

Before posting, please ensure that you have read all relevant course documentation, including the syllabus, assessment/assignment instructions, faculty feedback, and other important information.

Student Break Room

This communication forum allows for casual conversation with your classmates. Communication on this forum should always maintain a standard of appropriateness and respect for your fellow classmates. This forum should NOT be used to share assessment answers.

Grading

Discussion Boards (8 @ 2%)	= 16%
Unit Assessments (7 @ 8%)	= 56%
Case Studies (2 @ 5%)	= 10%
Unit VIII Course Project	= 18%
Total	= 100%

Course Schedule/Checklist (PLEASE PRINT)

The following pages contain a printable Course Schedule to assist you through this course. By following this schedule, you will be assured that you will complete the course within the time allotted.

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Unit I	Hazardous Waste
Review:	<input type="checkbox"/> Unit Study Guide <input type="checkbox"/> Learning Activities: See Study Guide
Read:	<input type="checkbox"/> Forward: pp. iv-vii <input type="checkbox"/> Chapter 1: Hazardous Waste <input type="checkbox"/> EPA Listed Wastes, 40 CFR 261.31-33: http://www.epa.gov/epawaste/hazard/wastetypes/listed.htm <input type="checkbox"/> Supplemental Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Assessment by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	

Unit II	Regulation of Hazardous Material Spill Response
Review:	<input type="checkbox"/> Unit Study Guide <input type="checkbox"/> Learning Activities: See Study Guide
Read:	<input type="checkbox"/> Chapter 2: Hazardous Material Spills and Response, pp. 37-59 <input type="checkbox"/> Supplemental Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Assessment by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	

Unit III	Spill Prevention and Response Plans
Review:	<input type="checkbox"/> Unit Study Guide <input type="checkbox"/> Learning Activities: See Study Guide
Read:	<input type="checkbox"/> Chapter 2: Hazardous Materials Spills and Response, pp. 59-79 <input type="checkbox"/> Supplemental Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Assessment by Tuesday, 11:59 p.m (Central Time) <input type="checkbox"/> Case Study by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	

Unit IV	Hazard Communication Programs
Review:	<input type="checkbox"/> Unit Study Guide <input type="checkbox"/> Learning Activities: See Study Guide
Read:	<input type="checkbox"/> Chapter 3: Hazard Communication and Right-to-Know Regulations Issues, pp. 81-106 <input type="checkbox"/> OSHA Websites: <input type="checkbox"/> 29 CFR 1910.1200 Hazard Communication Standard http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099 <input type="checkbox"/> 29 CFR 1910.1200, Hazard Communication Standard, Appendix D, Safety Data Sheets. http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10103 <input type="checkbox"/> Supplemental Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Assessment by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	

Unit V	Hazard Communication Signs and Labeling
Review:	<input type="checkbox"/> Unit Study Guide <input type="checkbox"/> Learning Activities: See Study Guide
Read:	<input type="checkbox"/> Chapter 3: Hazard Communication and Right-to-Know Regulations Issues, pp. 107-136 <input type="checkbox"/> 29 CFR 1910.1200, Hazard Communication Standard, Appendix C, Allocation of Label Elements: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10102 <input type="checkbox"/> Supplemental Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Assessment by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	

Unit VI	Hazard Communication Standards
Review:	<input type="checkbox"/> Unit Study Guide <input type="checkbox"/> Learning Activities: See Study Guide
Read:	<input type="checkbox"/> Chapter 4: Hazard Communication Benchmarking and Performance Criteria <input type="checkbox"/> 29 CFR 1910.1200 Hazard Communication Standard: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099 <input type="checkbox"/> Supplemental Reading: See Study Guide <input type="checkbox"/> Suggested Further Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Assessment by Tuesday, 11:59 p.m (Central Time) <input type="checkbox"/> Case Study by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	

Unit VII	Hazard Communication Best Practices
Review:	<input type="checkbox"/> Unit Study Guide
Read:	<input type="checkbox"/> Chapter 5: Best Practices in Hazard Communication <input type="checkbox"/> 29 CFR 1910.1200, Hazard Communication Standard, Appendix D, Safety Data Sheets: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10103 <input type="checkbox"/> Supplemental Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Assessment by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	

Unit VIII	Managing Hazardous Materials and Waste
Review:	<input type="checkbox"/> Unit Study Guide
Read:	<input type="checkbox"/> Review Chapters 1 through 5 in the textbook <input type="checkbox"/> Review 29 CFR 1910.1200 Hazard Communication Standard: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099 <input type="checkbox"/> Supplemental Reading: See Study Guide
Discuss:	<input type="checkbox"/> Discussion Board Response: Submit your response to the Discussion Board question by Saturday, 11:59 p.m (Central Time) <input type="checkbox"/> Discussion Board Comment: Comment on another student's Discussion Board response by Tuesday, 11:59 p.m (Central Time)
Submit:	<input type="checkbox"/> Course Project by Tuesday, 11:59 p.m (Central Time)
Notes/Goals:	