Course Description

A comprehensive study of the essential component needed in developing an effective safety management system. Examines the cultural aspects of integrating total safety management into all levels of an operation.

Prerequisites

None

Course Textbook


Course Learning Objectives

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

1. Describe the characteristics of an effective safety management system.
2. Discuss the importance of management commitment in establishing a safety culture.
3. Develop effective safety management policy statements, goals, and objectives.
4. Discuss the need for employee involvement in the development and execution of an effective safety management system.
5. Recognize the importance of clear assignment of safety responsibilities.
7. Describe the components of a hazard prevention and control system.
8. Apply risk management principles to reduce the impact of workplace hazards.
9. Explain various incident causation theories and use these theories to conduct an incident investigation.
10. Identify safety and health training needs.
11. Apply continuous improvement principles to safety management concepts.
12. Assess the effectiveness of an existing safety management system.

Credits

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

Course Structure

1. Unit Learning Objectives: Each unit contains Unit Learning Objectives that specify the measurable skills and knowledge students should gain upon completion of the unit.
2. Written Lectures: Each unit contains a Written Lecture, which discusses lesson 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.
4. Learning Activities (Non-Graded): These non-graded Learning Activities are provided in Units I-VIII to aid students in their course of study.
5. 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.
6. **Discussion Boards**: Discussion Boards are a part of all CSU term courses. Information and specifications regarding these assignments are provided in the Academic Policies 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 multiple choice and written response questions.

8. **Unit Assignments**: Students are required to submit for grading Unit Assignments in Units III, IV, V, and VII. Specific information and instructions regarding the Unit Assignments are provided below.

9. **Course Project**: Students are required to submit for grading a Course Project in Unit VIII. Specific information and instructions regarding the Course Project is provided 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.

**Unit Assignments**

**Unit III Assignment**

**Safety Policy Statement**

Compose a safety policy statement for your current organization (or an organization for which you previously worked), following the guidelines in the course textbook. Be certain it is specific to the organization, and not just a series of generic statements.

On a new page at the end of your policy statement, briefly propose how the statement should be distributed to the organization. You may also add additional comments or explanations as needed. If you use any sources other than your own experience, you must include a reference list and in-text citations.

You may choose any format for the layout of your policy statement. For this assignment, APA formatting is required only for references and citations. A title page is not required. Be sure to include your last name in the name of the uploaded file, e.g., lastname_safety policy.doc

**Unit IV Assignment**

**Hazard Analysis and Risk Assessment Project**

Select a serious workplace hazard with which you are familiar, or use Steps 1 and 2 of the Hazard Analysis and Risk Assessment Guide on page 114 of the course textbook to help you select one. Use Steps 3-10 of the guide to evaluate the hazard and its associated risks, and then click here to access the Unit IV Hazard Analysis/Risk Analysis Project Form. Please note that you will have to save a copy in order to fill out the form using the “Add Text” tool.

To complete the Initial Risk Assessment and Post Control Risk Assessment sections, use the following codes based on the Risk Assessment Matrix in Table 11 of the textbook:

**SEVERITY:**
- 1 – Catastrophic
- 2 – Critical
- 3 – Marginal
- 4 – Negligible

**PROBABILITY (Likelihood of Occurrence):**
- A – Frequent
- B – Probable
- C – Occasional
- D – Remote
- E – Improbable

**RISK CODE:**
- H – High
- S – Serious
- M – Medium
- L – Low
All sections of the form must be completed. Note that the Post Control Risk Assessment Measures section reflects the risk assessment AFTER applying the Additional Control Measures. In a paragraph of at least 500 words, explain the reasoning behind how you filled out each section of the form. Insert the completed form into the same Word document with your paragraph, using APA formatting for the paper format as well as for all references and in-text citations.

Unit V Assignment

Hazardous Noise Case Study

You have been hired as a consultant to help a local machine shop solve a hazardous noise problem. The shop is 10,000 square feet in area, with 12-foot high concrete block walls, and a flat metal roof. Inside the shop are two band saws, two metal lathes, three drill presses, one milling machine, and three abrasive grinders. The six employees work at benches located throughout the shop, using a variety of pneumatic-powered hand tools and non-powered tools. A recent noise survey found sound pressure levels exceeding 100dBA in some parts of the shop. All employees were monitored for noise exposure over an eight-hour workday, and the calculated TWA for noise for the employees ranged from 88dBA to 97dBA.

Using the Risk Assessment Matrix in Table 11 on page 122 of the course textbook, conduct an initial hazard analysis and risk assessment based on the information in the scenario provided. Discuss how you arrived at the risk level estimate.

Determine a possible control measure for each of the six levels in the hierarchy of controls on page 208 in the course textbook, and explain the reasoning behind each choice. For each of the selected control measures, reevaluate the original risk. In a summary paragraph, discuss the results and how the shop managers could determine which control measures would be required and which others might be beneficial to their operations.

Your paper must be a minimum of two pages in length, not counting cover page and references, and follow APA formatting for the paper, as well as for all references and in-text citations.

Unit VII Assignment

Case Study: Heat Exchanger Rupture Incident

Click here to access the Chemical Safety Board’s (CSB) Case Study on the 2008 Goodyear Heat Exchanger Rupture incident.

1. Using the information in the CSB Case Study, identify probable direct causes, contributing causes, and root causes of the incident. Explain the reasoning you used to reach these causes. You may make assumptions concerning any missing investigative information as long as you clearly state your assumptions. Discuss how and where your proposed causal factors fit into the causation model on page 356 of the course textbook. For the root causes only, provide recommended corrective actions.

2. Create an Events and Causal Factors chart that follows the timeline of the incident. Be sure to include all causal factors you identified in your discussion, as well as any other conditions and events that are relevant to understanding the accident sequence.

The chart can be created using MS-Word, PowerPoint, or Excel, or it can be hand drawn and scanned.

Completed case study must be a minimum of three pages and maximum of five pages, not including the title page, reference page, and chart. Use APA formatting for all of your assignment, as well as for all references and in-text citations.

Course Project

1. Conduct an audit of the following safety management system elements at your organization, or at an organization with which you are familiar and for which you have access to the required information:

<table>
<thead>
<tr>
<th>SAFETY MANAGEMENT SYSTEM ELEMENTS</th>
<th>ANSI/AIHA Z10 SECTIONS</th>
<th>COURSE TEXT CHAPTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management Leadership</td>
<td>3.1</td>
<td>5, 6</td>
</tr>
<tr>
<td>2. Occupational Health and Safety Policy</td>
<td>3.1.2</td>
<td>5</td>
</tr>
<tr>
<td>SAFETY MANAGEMENT SYSTEM ELEMENTS</td>
<td>ANSI/ AIHA Z10 SECTIONS</td>
<td>COURSE TEXT CHAPTERS</td>
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<td>3. Responsibility and Authority</td>
<td>3.1.3</td>
<td>5</td>
</tr>
<tr>
<td>4. Employee Participation</td>
<td>3.2</td>
<td>5</td>
</tr>
<tr>
<td>5. Initial and Ongoing Reviews</td>
<td>4.1, 4.1.1, 4.1.2</td>
<td>7</td>
</tr>
<tr>
<td>6. Assessment and Prioritization</td>
<td>4.2</td>
<td>8, 9, 10</td>
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<tr>
<td>7. Hierarchy of Controls</td>
<td>5.1.1</td>
<td>12</td>
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<tr>
<td>8. Design Review</td>
<td>5.1.2</td>
<td>13</td>
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<tr>
<td>9. Management of Change</td>
<td>5.1.2</td>
<td>15</td>
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<tr>
<td>10. Procurement</td>
<td>5.1.3</td>
<td>16</td>
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<tr>
<td>11. Emergency Preparedness</td>
<td>5.1.5</td>
<td>11</td>
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<tr>
<td>12. Education, Training, and</td>
<td>5.2</td>
<td>11</td>
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<tr>
<td>13. Monitoring and Measurement</td>
<td>6.1</td>
<td>17</td>
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<tr>
<td>14. Incident Investigation</td>
<td>6.2</td>
<td>18</td>
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<td>15. Audits</td>
<td>6.3</td>
<td>19</td>
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<tr>
<td>16. Corrective and Preventive</td>
<td>6.4</td>
<td>17</td>
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<tr>
<td>17. Feedback to the Planning</td>
<td>6.5</td>
<td>20</td>
</tr>
<tr>
<td>18. Management Review</td>
<td>7.1, 7.2</td>
<td>20</td>
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</tbody>
</table>

Some suggested sources for the objective evidence to support your evaluation:

- **Documents**: organizational safety manuals and instructions, Safe Operating Procedures, and Job Hazard Analyses;
- **Records**: emails or letters from management to employees, safety meeting minutes, mishap logs, audit reports, OSHA citations, inspection reports, risk assessments, and training records;
- **Interviews**: management personnel, supervisors, and employees; and
- **Observation**: walk through some workplaces to observe conditions for yourself.

2. For each management system element, discuss the objective evidence you found (or were unable to find). Evaluate the effectiveness of the organization’s implementation of each element against available reference sources and best practice information. Use the following five-tier evaluation scheme to rate each element:

- **World Class**: OHS Performance
- **Strong**: Conforming/complete, may have minor gaps with action plans
- **Moderate**: Scattered non-conformances need to be addressed, positive trends/major elements in place
- **Significant Non-Conformances Exist**: still needs focus
- **Major Effort Required**: major or systemic non-conformances exist

Appropriate references include the course textbook, textbooks from other college-level courses, ANSI/AIHA Z10-2005, other published consensus standards (ANSI, ASSE, AIHA, ISO, NFPA, etc.), OSHA standards and voluntary guidelines, and articles published in professional journals. Blogs, Wikipedia, About.com, Ask.com, and other unmonitored Internet resources are not considered scholarly references and should not be used. Please contact your professor if you have any questions about the appropriateness of a reference source.

3. If an element is found to be less than World Class, provide recommendations for improvement. Be sure to use appropriate scholarly reference sources to support your recommendations.

4. Conclude the audit report with a summary of the overall status of the organization’s safety management system.

The Course Project must be a minimum of seven pages, and a maximum of 10 pages, not including the title, abstract, and reference pages. A minimum of five professional references/sources must be used. Follow APA formatting for the paper, as well as for all references and in-text citations.
APA Guidelines

CSU requires that students use the APA style for papers and projects. Therefore, the APA rules for formatting, quoting, paraphrasing, citing, and listing of sources are to be followed. A document titled “APA Guidelines Summary” is available for you to download from the APA Guide Link, found in the Learning Resources area of the myCSU Student Portal. It may also be accessed from the Student Resources link on the Course Menu. This document provides links to several internet sites that provide comprehensive information on APA formatting, including examples and sample papers.

CSU Grading Rubric for Papers/Projects

The course papers will be graded based on the CSU Grading Rubric for all types of papers. In addition, all papers will be submitted for electronic evaluation to rule out plagiarism. Course projects will contain project specific grading criteria defined in the project directions. To view the rubric, click the Academic Policies link on the Course Menu, or by accessing the CSU Grading Rubric link, found in the Learning Resources area of the myCSU Student Portal.

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 Board (8 @ 2%) =16%
- Unit Assessments (I and VI @ 10% each) =20%
- Unit Assessments (5 @ 4%) =20%
- Assignments (4 @ 7%) =28%
- Course Project =16%
- 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.
By following this schedule, you will be assured that you will complete the course within the time allotted. Please keep this schedule for reference as you progress through your course.

## Unit I  
**Introduction to Safety Management Systems**

### Review:
- Unit Study Guide
- **Learning Activities (Non-Graded):** See Study Guide

### Read:
- **Textbook Introduction**
- **Chapter 1:** An Overview of ANSI/AIHA Z10-2005: The American National Standard for Occupational Health and Safety Management Systems
- **Chapter 2:** The Plan-Do-Check-Act Concept (PDCA)
- **Chapter 21:** Z10, Other Safety Standards and Guidelines, and VPP Certification
- **Supplemental Readings:** See Study Guide

### Discuss:
- **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)

### Submit:
- **Assessment** by Tuesday, Midnight (Central Time)

## Unit II  
**Serious Injury Prevention and Human Error Reduction**

### Review:
- Unit Study Guide
- **Learning Activities (Non-Graded):** See Study Guide

### Read:
- **Chapter 3:** Serious Injury Prevention
- **Chapter 4:** Human Error Reduction
- **Supplemental Reading:** See Study Guide

### Discuss:
- **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

### Submit:
- **Assessment** by Tuesday, Midnight (Central Time)

Notes/Goals:
### Unit III: Management, Employees, and Risk

**Review:**
- Unit Study Guide
- **Learning Activities (Non-Graded):** See Study Guide

**Read:**
- **Chapter 5:** Management Leadership and Employee Participation – Section 3.0
- **Chapter 6:** Achieving Acceptable Risk Levels: The Operational Goal
  - **Supplemental Reading:** See Study Guide

**Discuss:**
- **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- **Assessment** by Tuesday, Midnight (Central Time)
- **Assignment** by Tuesday, Midnight (Central Time)

Notes/Goals:

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### Unit IV: Planning and Prioritizing

**Review:**
- Unit Study Guide
- **Learning Activities (Non-Graded):** See Study Guide

**Read:**
- **Chapter 7:** Planning – Section 4.0
- **Chapter 8:** A Primer on Hazard Analysis and Risk Assessment – Section 4.2
- **Chapter 9:** Including Risk Assessment Provisions in Standards and Guidelines: A Trend
- **Chapter 10:** Three and Four Dimensional Numerical Risk Scoring Systems
  - **Supplemental Reading:** See Study Guide

**Discuss:**
- **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- **Assessment** by Tuesday, Midnight (Central Time)
- **Assignment** by Tuesday, Midnight (Central Time)

Notes/Goals:
<table>
<thead>
<tr>
<th>Unit V</th>
<th>Implementation of the Safety Management System, Part 1</th>
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</table>
| **Review:** | - Unit Study Guide  
  - **Learning Activities (Non-Graded):** See Study Guide |
| **Read:** | - Chapter 11: Implementation and Operation – Section 5.0  
  - Chapter 12: Hierarchy of Controls: the Safety Decision Hierarchy – Section 5.1.1  
  - **Case Study:** Texas Operations Contractor Alliance for Safety at Dow Facility in Freeport, Texas. Find this article by going to the OSHA Web site (www.osha.gov) and searching for “Case Study: Texas Operations Contractor Alliance for Safety at Dow Facility in Freeport, Texas”  
  - OSHA Publication 3088, How to Plan for Workplace Emergencies and Evacuations. Find this publication by going to the OSHA Web site (www.osha.gov) and searching for “Publication 3088” & “How to Plan for Workplace Emergencies and Evacuations”  
  - OSHA Publication 2254: Training Requirements in OSHA Standards and Training Guidelines. Find this publication by going to the OSHA Web site (www.osha.gov) and searching for “Publication 2254” & “Training Requirements in OSHA Standards and Training Guidelines”—choose the .pdf |
| **Discuss:** | - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
  - **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | - **Assessment** by Tuesday, Midnight (Central Time)  
  - **Assignment** by Tuesday, Midnight (Central Time) |
| **Notes/Goals:** | |

<table>
<thead>
<tr>
<th>Unit VI</th>
<th>Implementation of the Safety Management System, Part 2</th>
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</table>
| **Review:** | - Unit Study Guide  
  - **Learning Activities (Non-Graded):** See Study Guide |
| **Read:** | - Chapter 13: Safety Design Reviews – Section 5.1.2  
  - Chapter 14: Lean Concepts: Opportunities for Safety Professionals  
  - Chapter 15: Management of Change - Section 5.1.2  
  - Chapter 16: The Procurement Process - Section 5.1.3  
  - **Supplemental Reading:** See Study Guide |
| **Discuss:** | - **Discussion Board Response:** Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)  
  - **Discussion Board Comment:** Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time) |
| **Submit:** | - **Assessment** by Tuesday, Midnight (Central Time) |
| **Notes/Goals:** | |
### Unit VII: Monitoring, Measurement, and Assessment

**Review:**
- Unit Study Guide
- Learning Activities (Non-Graded): See Study Guide

**Read:**
- Chapter 17: Evaluation and Corrective Action – Section 6.0
- Chapter 18: Incident Investigation – Section 6.2
- Case Study: Heat exchanger rupture and ammonia release in Houston, Texas (.pdf provided for the unit assignment)
- The following articles are available in the Business Source Complete database of the CSU Online Library:
- Supplemental Reading: See Study Guide

**Discuss:**
- Discussion Board Response: Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- Assessment by Tuesday, Midnight (Central Time)
- Assignment by Tuesday, Midnight (Central Time)

### Unit VIII: Auditing and Management Review

**Review:**
- Unit Study Guide
- Learning Activities (Non-Graded): See Study Guide

**Read:**
- Chapter 19: Audit Requirements – Section 6.3
- Chapter 20: Management Review – Section 7.0
- Tools for a Safety and Health Program Assessment. Access these OSHA tools by using your favorite search engine and searching for the following: "Tools for a Safety and Health Program Assessment" & OSHA. They are located on the United States Department of Labor Web site.
- Supplemental Reading: See Study Guide

**Discuss:**
- Discussion Board Response: Submit your response to the Discussion Board question by Saturday, Midnight (Central Time)
- Discussion Board Comment: Comment on another student’s Discussion Board response by Tuesday, Midnight (Central Time)

**Submit:**
- Course Project by Tuesday, Midnight (Central Time)

Notes/Goals: