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Reviewed by: IES Advisory  
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Board approval: December 14, 2016  
Semester Effective: Fall 2017

Industrial Education Safety (IES) 1552 Respiratory Protection for Hazardous Materials Handling and Permit Required Confined Spaces (3 Units) CSU

Prerequisite: None

Total Hours: 48 hours lecture

Catalog Description: This course will focus on the safe handling, minimizing, and preventing catastrophic releases of hazardous materials. Personal Protective Equipment (including respiratory protection equipment) needed to work in and around hazardous atmospheres and permit-required confined spaces will be used.

Type of Class/Course: Degree Credit

Recommended Textbook:

*29CFR 1926 Construction Industry Regulations. MANCOMM .:*  
Davenport, Iowa, 2016. Print.

*Cal-OSHA Construction and Electrical Safety Orders MANCOMM .:* Davenport, Iowa,  
2016. Print.

*29 CFR §1910, General Industry Regulations, Mangan Communications, Inc.:*  
Davenport, Iowa, 2016 Print

*Cal-OSHA General Industry Safety Orders, Mangan Communications, Inc.:* Davenport, Iowa, 2016 Print

Enrollment Limitation:

Medical evaluation for respirator use; performed by a licensed health care professional

Course Objectives:

By the end of the course, a successful student will be able to:

1. Describe methods for detecting unsafe storage conditions for hazardous materials.
2. Evaluate factors that may contribute to the creation of hazardous conditions.
3. Determine best practices to mitigate risk associated with hazardous conditions in General and Construction Industries.
4. Identify processes that involve highly hazardous chemicals at or above the specified threshold quantities.
5. List the requirements of OSHA's Permit-Required Confined Spaces for General Industry Standards

6. Describe, evaluate and control safety and health hazards associated with confined space entry
7. Report, in writing, violations of the Permit-Required Confined Spaces Standards
8. Identify and describe the major elements of a respiratory protection program following the requirements of 29 CFR 1910.134
9. Analyze the technical aspects for the proper selection and use of respiratory protection
10. Evaluate the effectiveness of certain types of respirators to be used in hazardous and non-hazardous atmospheres.

Course Scope and Content:

- |          |                                    |
|----------|------------------------------------|
| Unit I   | General Overview                   |
|          | A. Hazardous Materials             |
|          | B. Permit Required Confined Spaces |
|          | C. Respiratory Protection          |
|          | D. Definitions                     |
| Unit II  | Subpart H Hazardous Materials      |
|          | A. Flammable Liquids               |
|          | B. Storage and handling            |
|          | C. Ignition sources                |
|          | D. finishing operations            |
|          | E. Key definitions                 |
|          | F. Fire controls                   |
| Unit III | Compressed Gasses                  |
|          | A. General requirements            |
|          | B. Key definitions                 |
|          | C. Storage and handling            |
|          | D. Inspections                     |
| Unit IV  | Liquefied Petroleum Gasses         |
|          | A. Basic rules                     |
|          | B. Key definitions                 |
|          | C. Storage and handling            |
| Unit V   | Anhydrous Ammonia                  |
|          | A. Basic rules                     |
|          | B. Key definitions                 |
|          | C. Storage and handling            |
|          | D. Refrigerated storage systems    |
| Unit VI  | Process Safety Management (PSM)    |
|          | A. Highly hazardous chemicals      |
|          | B. Key definitions                 |
|          | C. Elements of a PSM program       |

- D. Compliance and recommendations

Unit VII Permit Required Confined Spaces Scope and Definitions

- A. Basic Rules
- B. Key definitions
- C. 29 CFR 1910.146 (a) and (b)
- D. CCR, Title 8, §5156

Unit VIII General Requirements

- A. 29 CFR 1910.146(c)
- B. CCR, Title 8, §5157
- C. Ventilation
- D. Atmosphere monitoring devices

Unit IX Permit Required Confined Space Programs

- A. 29 CFR 1910.146 (d-i)
- B. CCR, Title 8, §5158

Unit X Respiratory Protection

- A. Respirator Descriptions
- B. Respirator Capabilities
- C. Fit Testing and Personnel Evaluation
- D. Evaluation of Respirators for hazardous conditions

Learning Activities Required Outside of Class: 6 hours of study per week

The students in this class will spend a minimum of 6 hours per week outside of the regular class time doing the following:

1. Studying assigned text, handout materials, and class notes
2. Reviewing and preparing for quizzes and examinations
3. Reviewing case studies
4. Completing written assignments and projects

Methods of Instruction:

1. Lecture
2. In-class workshops
3. Demonstrations
4. Case Studies

Methods of Evaluation:

1. Written final exam (OSHA 30)
2. Written final exam (Construction Industry Standards)
3. Performance observation
4. Participation
5. Quizzes
6. Role Playing
7. Group Projects

## Supplemental Data:

TOP Code:	095670: Indus Occupational Safe Health
SAM Priority Code:	C: Clearly Occupational
Distance Education:	Not Applicable
Funding Agency:	Y: Not Applicable(funds not used)
Program Status:	I: Program Applicable
Noncredit Category:	Y: Not Applicable, Credit Course
Special Class Status:	N: Course is not a special class
Basic Skills Status:	N: Course is not a basic skills course
Prior to College Level:	Y: Not applicable
Cooperative Work Experience:	N: Is not part of a cooperative work experience education program
Eligible for Credit by Exam:	NO
Eligible for Pass/No Pass:	NO
Taft College General Education:	NONE