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Industrial Education Safety (IES) 1105 Mine Safety and Health Refresher (.25 Unit)
[formerly Petroleum Technology 93Z]

Prerequisite: None

Total Hours: 4 hours lecture; 4 hours lab (8 hours total)

Catalog Description: This lecture/demonstration and familiarization course is *mine specific* and is designed to provide a fundamental understanding of surface, metal, non-metal mine workplace and the hazards associated thereto. The class will be in accordance with the requirements of 30 Code of Federal Regulations, Mine Safety and Health Act and Title 8, California Code of Regulations, Chapter 4, Subchapter 12, "Mine Safety Orders." This course is offered on a Pass/No Pass basis with the option to receive a letter grade.

Type of Class/Course: Degree Credit

Textbook: Various Mine Safety and Health Administration Publications

Additional Required Materials: None

Course Objectives:

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

1. understand new safety and health regulations at surface, metal, and non-metal mine, and
2. describe modified and/or updated safety and health regulations related to surface, metal, and non-metal mine.

Course Scope and Content:

- Unit I Introduction to the Work Environment
- A. Surface sand a gravel mine safety & health characteristics
 - B. Equipment hazards
 - C. *High wall* and *bench* hazards
 - D. Plant hazards
- Unit II Hazard Recognition
- A. General workplace hazards in a mine environment
 - B. What and where to expect hazards
 - C. Avoidance and reporting
- Unit III Emergency Medical Procedures
- A. Mine-specific procedures

- Unit IV Statutory Rights of Miners
 - A. What is Mine Safety Health Administration (MSHA) and the Cal-OSHA Division of Mining and Tunneling
 - B. Mandatory explanation of employee(miners) rights
 - C. Regulatory protection for miners who report safety & health non-compliance

- Unit V Self-Rescue & Respiratory Devices
 - A. Differences between self-rescue and assisted rescue
 - B. Emergency escape plans and routes
 - C. Use of respiratory devices in mining environments

- Unit VI Transport & Communication Systems
 - A. Mine-specific modes of travel
 - B. Mine-specific travel/vehicle patterns
 - C. Alarms, signals, voice communication types

- Unit VII Mine Map; Emergency Evacuation; Barricading
 - A. Mine-specific plat and escape maps

- Unit VIII Mandatory Health and Safety Standards
 - A. Introduction to Part 58 mandatory safety and health regulations

- Unit IX Authority & Responsibility of Supervisors and Miners' Representatives
 - A. Safety and health responsibilities of supervisors
 - B. Miners' representative defined
 - C. Safety and health responsibilities of miners' representatives

- Unit X Health
 - A. Respirable and nuisance dust
 - B. Silicosis
 - C. Commonly encountered chemicals
 - D. Protective methods

- Unit XI Electrical Hazards
 - A. Circuits
 - B. Grounding
 - C. Ground fault circuit interrupters (GFCI), fixed and portable
 - D. Shock, electrocution, arc blast/burns, and falls
 - E. Flexible cord use
 - F. Electrically operated equipment inspection and use

- Unit XII First Aid
 - A. Statement of regulatory requirement that every shift must have a designated first aid station or that each shift must have at least one trained first aider on site

- Unit XIII Mine Gases
 - A. Potential explosive or flammable/combustible gas presence
 - B. Monitoring for gases
 - C. Gas presence in surface mining operations

- Unit XIV Explosives
- A. Warnings
 - B. Use of communications devices (including Northstar)
 - C. Clearance alarms
 - D. Distance restrictions

- Unit XV Prevention of Accidents
- A. Techniques employed to foresee and prevent accidents

- Unit XVI Hazard Communication
- A. Hazards associated with chemicals
 - B. Container labels
 - C. Material Safety Data Sheets (MSDS)
 - D. Grounding and bonding
 - E. Personal protective equipment
 - F. Storage, segregation, and handling

Lab Content:

- 1. Hands-on exercises on responses to hazards identified during the Hazard Recognition section using equipment, materials, etc
- 2. Identification of various signs and symbols used for hazardous materials encountered in the surface mine setting

Learning Activities Required Outside of Class: None

Methods of Instruction:

- 1. Lecture
- 2. Demonstration
- 3. Hands-on exercises

Methods of Evaluation:

- 1. Written final exam