

Common Course Numbering System

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Course: PRO 110

Title: Safety, Health and Environment

Long Title: Safety, Health and Environment

Course Provides an introduction to the field of safety, health, & environmental concerns within the process industry.

Description: Within this course, you will be introduced to various types of plant hazards, safety and environmental systems and equipment, and the regulations under which processing plants are governed.

Min Credit: 3

Max Credit:

Status Notes: New course entered 9/30/05 s@
 Origin Notes: RRCC

STANDARD COMPETENCIES:

- I. Identify the various agents that can present potential safety and health hazards in the Process Industry, including process fluids, pressurized equipment, physical agents, and air contaminants.
- II. Identify specific categories of hazardous chemicals used in the Process Industry and the potential safety and health hazards posed by these chemicals.
- III. Explain the various routes of entry hazardous chemicals use to enter the human body.
- IV. Describe the short-term and long-term impact specific hazards have on individual health and safety, as well as the environment.
- V. Identify the various factors which can lead to leaks, spills, and releases and their potential dangers to worker safety and environmental protection.
- VI. Employ and exhibit attitudes and behaviors that are critical to avoid personal injury, injury to others, or injury to the environment.
- VII. Recognize, identify and describe the various engineering controls; specifically alarm and indication systems, process containment and control systems, and process upset control systems used by the Process Industry to eliminate and/or minimize threats to safety, health, and the environment.
- VIII. Describe and discuss various administrative controls, in the way of specific company SH&E (Safety, Health, and Environment) programs and activities, used by the Process Industry to eliminate and/or minimize threats to safety, health, and the environment.
- IX. Discuss the function and purpose of personal protection equipment, testing equipment, and permitting systems found in local plants.
- X. Use MSDS to obtain key information regarding hazardous materials.
- XI. Employ labels and placards to identify the contents of process vessels, piping, and miscellaneous containers.
- XII. Apply various analysis techniques to identify potential unsafe workplace practices, and workplace hazards to help ensure the safety of the work environment.

XIII. Demonstrate the correct use of equipment and facilities used to prevent or contain various emergencies that may occur in the Process industry.

XIV. Discuss the various federal, state and local regulations as well as industry standards that impact the Process industry.

TOPICAL OUTLINE:

- I. Introduction to Hazard Types
- II. Routes of Entry, Dose Response, Acute/Chronic Exposure
 - A. Classify hazardous agents into industrial hygiene hazard types
 - B. Routes of entry
- III. Environmental Effects of Hazardous Agents
 - A. Short-term and long-term effects on an individual's health
- IV. Chemical Agents ; Gases, Vapors, Solvents, and Particulates
 - A. Chemical agents found in the process technology industry
- V. Chemical Hazards ; Process Fluids
 - A. Potential safety and health hazards
 - B. Hazards with pressurized equipment
 - C. Compressed gas
- VI. Hazardous Chemical Categorization
 - A. Categories of hazardous chemicals
 - B. Purpose and function of labeling to identify contents
- VII. Noise, Heat, Radiation, and Electricity
 - A. Physical hazards of the above
- VIII. Fire, Explosion, and Detonation
 - A. Physical hazards of the above
- IX. Biological, Ergonomic & Plant-Specific Hazards
 - A. Activities performed in process technology with potential hazards
 - B. Proper lifting techniques
 - C. Confined spaces
- X Plant-Specific Hazards
 - A. Factors that can lead to leaks, spills and releases
 - B. Potential dangers
- XI. Engineering Controls ; Alarms and Indication Systems
 - A. Different alarm and indication systems
- XII. Process Containment and Process Upset Controls
 - A. Process containment and control systems

- B. Grounding mechanisms
- XIII. Administrative Controls & Programs and Practices
 - A. Systems used to minimize and/or eliminate threats to health, safety and the environment
- XIV. PPE Equipment & Overview
 - A. Personal protective equipment & function and purpose
- XV. Monitoring Equipment & Overview
 - A. Testing equipment found in plants
- XVI. Permitting Systems
 - A. Permitting systems
 - B. Scaffold tags
 - C. Job safety analysis
- XVII. Fire, Rescue and emergency response equipment
 - A. Proper use of safety equipment
 - B. Fire extinguisher use
 - C. Practice drills
- XVIII. Regulatory Overview: OSHA and EPA
 - A. OSHA regulation that impact the process technology industry
 - B. Hazard communications
 - C. EPA regulations that impact process technology
- XIX. Regulatory Overview: NFPA & DOT
 - A. NFPA standards that impact process technology
 - B. DOT regulations
- XX Regulatory Overview: State & Others
 - A. State-specific regulations
 - B. Other organizations that impact process technology

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