

## **Module 700 – INDUSTRIAL SAFETY & ENVIRONMENTAL PROTECTION**

### ***Lesson Description:***

An intermediate level safety lesson covering applicable (non-process/equipment-specific) provisions of OSHA regulations in the operation of metalforming equipment. The lesson will stress the relationship of neatness and organization to safety, quality and the environment. Course examines topics pertaining to process/machine operations, the handling and storing hazardous materials, using Material Safety Data Sheets, labeling of chemicals, inspecting and using safeguarding devices. The lesson includes a detailed look into lockout/tagout devices and zero energy requirements. In addition, a basic understanding of ergonomics and bloodborne pathogen exposure and containment will be addressed as per impact on the workplace.

*Prerequisite:* Module 200 – Basic Shop Safety

### ***Learning Objectives:***

At the completion of this lesson, the student will be able to:

- ◆ Understand OSHA-1910 and EPA provisions applicable to metalforming.
- ◆ Explain the basic principles of the 5S's and state their relationship to safety.
- ◆ Identify the "Point of Operation" and explain "Safe Distancing."
- ◆ Recognize 5 common safeguarding devices and/or panel controls and explain how they work.
- ◆ State 5 energy sources that are typically locked out and tagged.
- ◆ Explain 3 lockout-tagout devices, when they are used, who uses them and define "zero energy" requirements of each.
- ◆ Understand the practices and responsibilities for using safeguarding devices.
- ◆ Recognize certain biohazards associated with bloodborne pathogens.
- ◆ Understand a Workplace Hazard Control and a Hazard Communication Program.
- ◆ Meet general OSHA safety training requirements for an entry-level operator.\*

### ***Methods of Instruction:***

Lecture, videos, simulations, role-play exercises, reading and real examples and applications.

### ***Methods of Evaluation:***

Group presentations, individual written/oral assignments and written test/exam after training.

### ***Lesson Materials Provided by PMA:***

- ◆ PMAEF Student Handouts – *The 5S's and Bloodborne Pathogens*
  - ◆ PMAEF Video: Segment 1 – *Proper Dress & Safety Devices* and Segment 2 – *Basic Operator Controls & Lockout/Tagout*
  - ◆ PMAEF Video: *Lockout for Safety, Lockout for You!* (Part One)
  - ◆ Overhead Transparencies
  - ◆ PMAEF *Instructors Guide* with *SMART* Lesson Plan
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- ◆ PMAEF Item Bank (assessment questions) for construction of end of lesson examination.

- ◆ Lists of recommend reading and self-study materials (articles, videos, textbooks, references, and government publications).
  - ☞ Note: Student handouts, transparencies, and item bank provided on CD or disk.

### **Lesson Topics & Content Outline:**

- ◆ **Industrial Safety**
  - Review of OSHA-1910 provisions (.217 and .176 [a] [b] [c] and .179 [b] [5])
  - Industrial Housekeeping and the 5'S
  - Proper Dress and Personal Protective Devices (PPD's)
  - Use of Mechanical/Electrical Equipment
  - Safeguarding Devices and Operator Controls
  - Safe Distancing and Point of Operation
  - Energy Types, Energy Sources and Zero Energy Requirements
  - Lockout-Tagout Applications/Rules and Responsibilities
  - Operation Hierarchy: *Safety – Quality – Quantity!*
  
- ◆ **Environmental Protection**
  - Review of EPA provisions (includes materials identification, threshold limits, flash points, lower explosive limit, carcinogens, and reactivity)
  - Use of Personal Protective Devices/PPD (hoods, respirators, nitrile gloves, etc.)
  - Chemical and Fluids Handling and MSDS
  - Chemical Storage and Disposal and MSDS
  - Spill Response and Containment and MSDS
  - Bloodborne Pathogens – Contamination & Exposure Control
  - HMIS Symbols (types, colors, ratings and interpretation)
  - Ergonomics and MSD Hazards.
  
- ❖ **End of Lesson Exam (PROficiency Assessment)**

- ☞ Note: See *SMART* Lesson Plan in the Instructor's Guide for detailed topic content, flow of lesson, and in-training assessments. Instructor is responsible for obtaining typical examples of PPD's (e.g., locks and tags, hoods, respirators, chemical gloves, sniffers/snoops, pigs, etc.). Instructor should check for any additional safety and/or environmental training requirements as specified by the State or local authority and include those requirements in this lesson.

\* To meet this objective, Module Lessons 200, 700 and 900 must be successfully completed.