Course Outline - Industrial Safety

Course Topic: Industrial Safety (Plus hoists and cranes)
Contact Hours: 40 hours

Course Description:

The focus and objective set forth in this course is to make the auto manufacturing industry workforce aware of MIOSHA and OSHA safety standards and practical safety applications. Students will review general industry and construction standards set forth by of MIOSHA and OSHA with emphases on how to administer safety standards to ensure a safe working environment for all involved. By the conclusion of the course students should be able to recognize potential hazards and identification of permit required confine spaces, lockout / tagout procedures, standard rigging applications, basic crane operation, and the ability to apply work-related safety and accident prevention methods. Acknowledge company written policies and procedures for certain working applications and how to administer safe work practices.

Course Outcomes and Objectives

S-1 Detect threats to safety and health at the workplace and initiate preventative measures (PPE, lock out tag out, OSHA, hazardous training, chemical, sound, crushing, etc.)

1. Describe Introduction to OSHA and Hazard Identification
2. Name, describe, and inspect personal protective equipment (PPE)
3. Complete lockout/tag out/block out and release of stored energy procedures
4. Select the proper PPE based on the shock hazard, and arc flash/blast categories; and in accordance with NFPA70E
5. Complete a multi placard lock out procedure

S-2 Apply work-related safety and accident-prevention methods

1. Identify the three classifications and types of fires
2. Identify and explain proper machine guarding

S-3 Describe ways to react to emergency evacuation plans, emergency exits

1. Demonstrate first aid proficiency for common types of injuries or conditions, including:
   - Cardiac emergencies and unconscious choking
   - AED
   - Sudden illness

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- Soft tissue injuries
- Injuries to muscles, bones, and joints
- Heat and cold-related emergencies

2. Define and provide an example of the following:
   - Emergency situations
   - Protecting yourself
   - Before giving care
   - Prioritizing care

S-4 Rules for preventative fire protection, apply company policies and procedures in case of fire

S-5 Determine protective measures and carry out potential equalization

S-6 Use ladders and scaffolds

1. Demonstrate use of a ladder and demonstrate walking a walkway safely.

S-7 Basic hoist operation, material lifting, and transporting suspended materials

1. Explain material handling truck, personal, and work surroundings and applications
2. Explain hoist and crane safety
3. Recognize and identify basic types of hoists and cranes
4. Demonstrate the use of proper hoist, trolley and bridge motions, and hand signals
5. Perform daily or pre-start inspection of hoists and/or cranes
6. Demonstrate satisfactory rigging safety knowledge, based on loads and equipment to be lifted by:
   - Identifying and selecting the proper rigging equipment and hardware.
   - Rigging various items with the 4 basic hitches.
   - Turning a load (with one or two hooks)
7. Calculate or verify lifting weights, by
   - Measuring the item to be rigged, identify the material, and calculate the weight
   - Estimating the center gravity
8. Identify functions and types of straps and/or slings
9. Explain the proper pre-operation inspection procedures for slings, chains, and attachments

S-**8 Apply appropriate machine safety practice in regards to aerial lifts, fall arrest systems, and power industrial truck requirements**

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S-9 Demonstrate appropriate workplace safety practices in relation to electrical safety

S-10 Confine space recognition, with emphases on entrant and attendant duties
1. Explain the difference between confined space permit and non-permit required documentation
S-11 Recognize hazardous material handling in relation to Global Harmonization system (GHS)
1. Identify hazard communication display and documentation with OSHA guidelines as well as requirements of hazardous communication charts

Content Outline:
S-1 Discussion and review of the following MiOSHA and OSHA safety standards;

- MiOSHA Part #1, General Industry, General Provisions Standard
- OSHA General Provisions
- MiOSHA Health and Safety Act 154
- OSHA inception
- Reasoning of OSHA

S-2 Discussion and review of MiOSHA Part 37, General Industry, Accident Prevention
Signs and Tags, comparison between OSHA and MiOSHA in regards to accident prevention signs and tags.

- MiOSHA and OSHA general Industry, Part 85 The Control of
- Hazardous Energy Sources, 29 C.F.R. 1910.147

S-3 Discussion and review of Emergency Egress requirements and employer requirements for emergency evacuation of facilities
MiOSHA Part 6, General Industry Fire Exits

- OSHA Subpart E, Fire Exits

S-4 Review of fire prevention and application

- MiOSHA Part 8, General Industry, Portable Fire Extinguishers
- OSHA Subpart L C.F.R.1910

S-5 Discussion, review, and practical application of machine guarding

- OSHA Machine guarding etool
- Identification of potential nip points, pinch points, points of operation

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S-6 Discussion, review, and practical application of fixed ladder requirements and portable ladder application; Scaffolding requirements and installation

- MiOSHA Part 3, General Industry, Fixed Ladder
- MiOSHA Part 4, General Industry, Portable Ladder
- OSHA Subpart D, Walking – Working Surfaces

S-7 Discussion, review, and practical application of basic crane requirements, rigging requirements, and sling application

- MiOSHA Part 18, General Industry, Overhead and Gantry Cranes
- MiOSHA Part 49, General Industry, Slings
- OSHA 29 C.F.R. 1910.179 Overhead and Gantry Cranes
- Compare MiOSHA and OSHA 29 C.F.R. 1910.184 Sling differences

S-8 Discussion and review of fall protection, aerial work requirements, power industrial truck safety standards

- MiOSHA Part 45 Construction, fall Protection
- MiOSHA Part 58, General Industry, Aerial Work Platforms
- MiOSHA Part 37, General Industry, Power Industrial Trucks

S-9 Discussion and review of electrical safety in relation to workplace application

- MiOSHA Part 39, General Industry, Design Safety for Electrical Systems
- MiOSHA Part 40, General Industry, Electrical Safety related Practices
- MiOSHA Part 86, General Industry, Electrical Power Generation
- OSHA 29 C.F.R. 1910 Subpart S, Electrical
- OSHA 29 C.F.R. 1910.269, Electrical Power Generation

S-10 Discussion, review and practical application for confined space entrant and attendant requirements

- MiOSHA Part 90, Confined Space
- MiOSHA Part 490, General Industry, Confined Space
- OSHA 29 C.F.R. 1910.146 Permit Required Confined Spaces

S-11 Discussion and review of MSDS, SDS, Right to Know, and Global harmonization System for chemicals within the workplace

- MiOSHA Part 92, General Industry, Hazardous Communication Right

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- to Know
- MiOSHA Part 42, Construction Standard, Hazardous Communication
- MiOSHA Part 430 Occupational Health, Hazardous Communication

Manufacturing lab – classroom demonstrations

1. Preventive Signs and Tags
2. Machine Guarding
3. Nip point, Pinch points, Point of operation
4. Portable Ladder
5. Hoist Operation
6. Rigging
7. Sling application
8. Personal Protection Equipment application
9. Don and Doff Fall Arrest System

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