

Lab 01: Laboratory Safety

I. Purpose

- A.) Provide an overview of general safety considerations for any piece of equipment
- B.) Provide experience with using Cause & Effect Diagrams to evaluate potential hazards
- C.) Provide initial documentation of process training

II. Practice

Go to the course website and download the current Safety Requirements for Computer-Integrated Manufacturing Lab. Bring this document to the first lab.

Your lab team is to produce a general Cause and Effect Diagram for “safety hazards that lead to accidents” for manufacturing equipment. The lab instructor will lead your group through this exercise, but class participation is expected. You are to document the final diagram in your engineering notes.

- A.) Construct the basic general Cause & Effect (Fishbone) Diagram as shown below. Note that the “Four M’s and an E” are used as the basic bones: Man, Material, Method, Machine, and Environment.
- B.) You and your team are to brainstorm “connecting bones” that represent possible causes for a safety hazard. The lab instructor will alert you when the “skeleton” is sufficiently filled in.
- C.) You and your team will define a plan that incorporates 5 S in the lab (that will be performed at the end of each lab session). 5 S stands for:
Sort Set (in order) Shine Standardize Sustain

The lab instructor will assign each of the team members to a piece of equipment to evaluate for hazards.

- D.) Construct the basic Cause & Effect Diagram for the equipment on your engineering problems paper.
- E.) Brainstorm possible safety hazard causes for the equipment. Add these to your diagram.
- F.) As a team, consolidate your individual efforts into a single safety document when asked by the lab instructor. This document should include:
 - a. Cover sheet with title, date, time, and all participating team member names
 - b. Summary of actions taken by the team to construct the safety procedures and rules
 - c. 5 S plan for the lab, with assigned tasks.
 - d. Check list for safe operation of each assigned piece of equipment
 - e. Appendix of individual cause and effect diagrams from each team member

Turn in the following materials on the due date (start of the next lab period):

- a.) One (1) copy of your team’s final Lab Safety Report. Parts (a.), (b.), and (c.) should be done on a computer. Part (d.) may be the original or a photocopy of the original EP paper page.

Figure 1. General Cause & Effect Diagram (With Partial Sub-Skeleton)

