BAKER COLLEGE
STUDENT LEARNING OUTCOMES

AMT 2050 Principles Industrial Safety Health & Environment
3 Semester Hours

Student Learning Outcomes & Enabling Objectives

1. Examine the concepts of industrial safety management
    a. Overview of industrial safety
    b. Identify roles of changing nature of safety
    c. Understand the characteristics of modern safety PPE
    d. Investigate attitude and behavior challenges of industrial safety
    e. Describe applications of industrial safety historically in United States
    f. Analyze labor relations OSHA and human resource management
    g. Relate mock safety team discussions to root cause analysis, creating failsafe methodology

2. Identify the background of hazard classification
    a. Explain the beginnings of common industrial hazards
    b. Explore the industrial revolution
    c. Describe the value of industrial safety and accident investigation

3. Analyze industrial hazard routes of entry
    a. Discuss dose response relationship and bio hazards
    b. Explain permitting system
    c. Define types of industrial pollution
    d. Understand current federal agencies roles in industrial safety OSHA /MIOSHA

4. Explore Hazards related to particulates, metals, electrical, liquids, vapors other industrial hazards
    a. Analyze the roles of the industrial safety engineer
    b. Examine product safety, engineering, manufacturing cycles, PSM standard and industrial hazard classifications
    c. Understand impact of unsafe industrial conditions and behaviors, first aid, and CFR 1910.179 overhead and gantry cranes

5. Examine industrial failsafe methodology and industrial safety design
    a. Interpret scope of job hazard analysis and process design

b. Discuss types of manufacturing and process designs, communication, maintenance and record keeping CFR 1910
c. Examine GHS (MSDS) and placard system

6. Review manufacturing safety subsystems
    a. Explain work measurement, risk evaluation, materials handling, facilities, fire suppression etc.
    b. Select safety metrics format and sampling techniques
    c. Create data charts illustrating safety metrics, PID schematics, materials handling, facilities etc.

Big Ideas and Essential Questions

Big Ideas

- Creating a safe industrial environment
- The Role of safety management OSHA / MIOSHA
- Design of engineered controlled manufacturing processes
- Organizing and planning for administrative control manufacturing
- Safe operation of Industrial equipment
- Industrial maintenance, first aid, EC, AC, BBS, PPE
- Safety within manufacturing methods, materials, management, PSM and work measurement

Essential Questions

1. Why is industrial safety management a priority?
2. How can safe manufacturing methods, materials, machines, cost & work be measured?
3. How do I determine if a process is unsafe?
4. Why is it important to consider process efficiencies in relation to safety?
5. How do I determine what materials to safely utilize in a process?
6. What impact does material flow have on safety and efficiency?
7. What are the four principle dynamics of industrial applications?
8. How does safety culture impact the industrial human factor?
9. What is CFR 1910?

These SLOs are not approved for experiential credit.

Effective: Fall 2017