

EHS 111
OCCUPATIONAL SAFETY AND ENGINEERING

COURSE DESCRIPTION:

Prerequisites: None

Corequisites: None

This course covers recognition, control, and regulation of safety hazards in the workplace. Topics include accident investigation, Workers Compensation, record keeping, training, machine guarding, facilities, personal protection and fire protection. Upon completion, students should be able to recognize safety hazards and recommend strategies for remediation and compliance. Course Hours Per Week: Class, 5. Semester Hours Credit, 5.

LEARNING OUTCOMES:

Upon completion of this course, the student will be able to:

- a. Develop appropriate record keeping procedures as part of an occupational safety program.
- b. Develop a safety inspection program.
- c. Prepare accident reports.
- d. Understand the principles of worker's compensation.
- e. Apply relevant regulations for occupational health and safety.
- f. Demonstrate proper use of personal protective equipment.
- g. Implement a lockout/tagout program for the control of hazardous energy.
- h. Establish and document workplace evacuation procedures in the event of fire or other incident.

OUTLINE OF INSTRUCTION:

- I. Introduction to occupational safety and health
 - A. Definitions: health vs. safety
 - B. Scope of occupational disease and injuries
 - C. Occupational safety professionals

- II. Accidents
 - A. Definition and classification of accidents
 - B. Job safety analysis
 - C. Accident investigation
 - D. System safety

- III. Legal regulation of occupational safety and health
 - A. Federal agencies: OSHA, NIOSH
 - B. Federal regulatory system: FR and CFR
 - C. Regulation at the state level: NC Dept. Labor
 - D. Inspections, citations, penalties
 - E. Standards

- IV. Worker's compensation and recordkeeping
 - A. History and legal principles
 - B. Disability classifications
 - C. OSHA recordkeeping and reporting

- V. Facilities, falls
 - A. Definitions: slips, trips, falls
 - B. Mechanics of slips and falls
 - C. Walking and working surfaces
 - D. Fall prevention and protection

- VI. Materials Handling
 - A. Manual materials handling and lifting
 - B. Equipment-aided handling
 - C. Powered industrial trucks
 - D. Cranes
 - E. Materials storage

- VII. Personal protective equipment (PPE) and first aid
 - A. General requirements for PPE
 - B. Hazard assessment
 - C. Eye, head, hand, foot protection
 - D. First aid

- VIII. Machine Safeguards
 - A. Machine motions and hazards
 - B. Safeguarding techniques
 - C. Lockout/Tagout: the control of hazardous energy
 - D. Portable tools

- IX. Fire and process safety
 - A. Causes of fire
 - B. Fire prevention inspections
 - C. Response to fires: alarms, equipment, evacuation
 - D. Training for fire protection
 - E. Exits
 - F. Emergency plans
 - G. Fire suppression equipment
 - H. Exit marking

- I. Process safety management

- X. Safety Programs
 - A. OSHA's four point program
 - B. Training and motivation
 - C. Inspection programs
 - D. Additional resources for safety and health

REQUIRED TEXTBOOKS AND MATERIALS:

Asfahl, C. Ray (2003). *Industrial Safety and Health Management*. Upper Saddle River, New Jersey: Prentice-Hall.

United States Department of Labor (2007, or any recent edition). *OSHA General Industry Regulations* (29 CFR 1910). Washington D.C.: United States Government Printing Office. (Note: equivalent editions published by the North Carolina Department of Labor and private vendors are acceptable.)

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 686-3652 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.