

**SOUTHEAST COMMUNITY COLLEGE**  
**CONSTRUCTION, MANUFACTURING AND TECHNOLOGY DIVISION**  
**Energy Generation Operations Technology Program**  
**Revision Date: August 21, 2023**

**I. CATALOG DESCRIPTION**

Course Number:	ENER1110
Course Title:	Operator Safety
Prerequisite(s):	None
Catalog Description:	Operator-based safety topics including: OSHA 10 hour general industry certification, human performance tools, personal protective equipment, ladders, body harnesses, confined space, lock-out/tag-out, GHS, and fire extinguishers. Students will perform a supervised climb with fall-arrest-protection to above 20 feet. This course also provides aerial lift & forklift training, arc flash awareness, and industrial accident case studies. Lab must be taken concurrently.
Credit Hours:	3
Class Hours:	38
Lab Hours:	23
Total Contact Hours:	61

**II. COURSE OBJECTIVES:** *Course will:*

- A. Introduce the student to industrial safety crucial in any hazardous plants such as electrical, oil and gas and nuclear plants.
- B. Provide instruction in the prevention of accidents through the use of human performance tools, checklists and procedures.
- C. Introduce the student to safety equipment and devices commonly used in the protection of personnel on the job.
- D. Introduce the proper selection, use and care of personal protective equipment.
- E. Provide the student with tools to recognize and correct potential hazards associated with plant operations.
- F. Familiarize the participant with the Globally Harmonized System (GHS) of hazards communication.
- G. Provide students with multiple case studies, research requirements, videos, and class discussion on historic industrial and environmental accidents and their causes.
- H. Provide an opportunity for students to become certified to operate a forklift and man lift.
- I. Provide students with opportunities to increase their knowledge of arc flash safety.

**III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:**

- A. Student Learning Outcomes: *Student will be able to*
  - 1. Understand the reasons for safety in the workplace.
  - 2. Explain how to use Personal Protective Equipment for all work situations.
  - 3. Demonstrate and use a Fall Arrest System.
  - 4. Complete the OSHA 10 hour General Industry course and receive a certificate of completion.
  - 5. Understand and demonstrate the proper use of a forklift, aerial life, overhead and jib crane.
- B. General Education Learning Outcomes (GELOs)
  - 1. GELO #3: Critical Thinking & Problem Solving  
Outcome 2: Synthesize information to arrive at reasoned solutions to problems.

#### **IV. CONTENT/TOPICAL OUTLINE**

- A.** Human Performance Tools
  - 1. Introduction
  - 2. Critical decision making
  - 3. Risk recognition
  - 4. Coaching
- B.** OSHA 10 hour General Industry
  - 1. Face-to-Face 10 hour certificate program of instruction
- C.** Ladder Safety
  - 1. Types of ladders and uses
  - 2. Safe use of each ladder type
  - 3. Training certificate from American Ladder Institute
- D.** Personal Protective Equipment
  - 1. Types of PPE
  - 2. Uses and Limitations of PPE
- E.** Body Harness
  - 1. Components of a Body Harness
  - 2. Limitations and correct usage
  - 3. Perform inspect, don and doff of full body harness
- F.** Fall Protection
  - 1. Explain Fall Restraint and Arrest and Associated Components
  - 2. Explain Work Procedures/Fall Protection Planning
  - 3. Perform a Fixed Ladder climb
- G.** Confined Space
  - 1. Definition of Confined Space
  - 2. Confined Space hazards
  - 3. Confined Space safety procedure
  - 4. Perform a Confined Space entry
- H.** Lockout/Tag-out
  - 1. Definition of LOTO
  - 2. LOTO procedures
  - 3. Perform a LOTO
- I.** Hazard Communication/Right-to-Know
  - 1. Interpret and apply the Globally Harmonized System (GHS)
  - 2. Understand and apply the concepts of hazard communications
- J.** Portable Fire Extinguishers
  - 1. Define and identify types of portable extinguishers
  - 2. Define and identify types of fires
  - 3. Uses for each type of portable fire extinguishers
  - 4. Perform a portable fire extinguisher activity
- K.** Elevator Design and Rescue
  - 1. Discuss common elevator types and designs
  - 2. List common elevator components
  - 3. Understand the required procedures involved with elevator rescue
- L.** Rigging and Crane Safety
  - 1. Define components of a crane
  - 2. Understand Rigging basics
- M.** Case Studies from “The Industrial Operator’s Handbook”
  - 1. The nature of industrial failure
  - 2. Strategy for operating success

3. Vital operating skills
  4. View select industrial accident/incident videos
  5. Discuss select industrial accident/incident case studies for the text book
- N. Aerial Lift, Forklift training-material from National Safety Council & Nebraska Safety Council
1. Complete the training video and quiz
  2. Perform the forklift operator practical
- O. Arc Flash training
1. Basic electrical safety
  2. Arc flash 70E requirements
  3. Perform inspection, don and doff of arc flash suit

## V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Howlett II, H.C., *The Industrial Operators Handbook* and National Safety Council: *Coaching the Lift Truck Operator*
- B. Other Resources: Instructor provided, Internet, classroom activities
- C. Outside Reading/Research required: Internet Research assignments
- D. Supplies:
1. 3 ring binder with blank paper for notes
  2. USB Flash Drive
  3. Reusable Ear Plugs
  4. Safety Glasses
  5. Hard Hat (Class E minimum)
  6. Leather Gloves
  7. Safety Shoes
  8. OSHA 10 hour General Industry safety subscription

## VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
1. Instructor-led learning activities
  2. Assigned research projects
  3. Homework assignments
  4. Quizzes and tests

## VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
1. Class participation
  2. Regular assignments
  3. Written exams and/or quizzes
  4. Performance and observational assessments

## VIII. SPECIFIC COURSE REQUIREMENTS

- A. A minimum grade of "C" or 70% is required to receive credit for this course.
- B. A minimum grade of "B" or 80% is required to achieve the NUCP certificate, in accordance with ACAD 08-006, Revision 1, dated October 2016
- C. Cheating within the Manufacturing Division: Any violation of academic integrity on assignments, quizzes, or tests will result in a grade of 0 on that assignment, quiz, or test. A second violation in any course after the initial infraction will result in a grade of F for that course. Any additional violations while in the program will result in a suspension

from the program. For additional information, refer to the *Academic Integrity* pamphlet available from Student Services.

- D.** Credit by Examination: Credit for the course CANNOT be earned through Credit by Examination.