SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION, MANUFACTURING AND TECHNOLOGY DIVISION
Energy Generation Operations Technology Program
Revision Date: August 24, 2020
Syllabus Statements

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. Sharp model EL506W calculator
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 70% is required.

B. 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.

C. Credit by Examination: Credit for the course CANNOT be earned through Credit by Examination.