

SOUTHEAST COMMUNITY COLLEGE
MANUFACTURING OCCUPATIONS
WELDING TECHNOLOGY
COURSE SYLLABUS
September 12, 2023

I. CATALOG DESCRIPTION

Course Number: WELD1107
Course Title: Oxy fuel and plasma
Prerequisite(s): None

Catalog Description: Theory, safety, equipment and applications of the Oxyacetylene Welding and cutting Process. Laboratory exercises with the Oxyacetylene Welding, Braze Welding, Oxyacetylene Cutting and related processes. Theory of Plasma Arc Cutting process and advanced laboratory exercises to include the use of automated equipment.

Credit Hours: 3.5
Classroom Hours 30
Lab Hours 68
Total Contact Hours 98

II. COURSE OBJECTIVES: *Course will:*

- A.** Teach the student about safe handling, care, storage and operating oxyacetylene cutting and welding systems.
- B.** Identify and demonstrate the safe and proficient use of basic hand, power, measuring and assembly tools.
- C.** Teach how to safely and correctly, set up a portable oxygen fuel-cutting torch.
- D.** Teach how to safely and correctly, make free hand and track cutter cuts on plate and sheet steel.
- E.** Teach how to safely and correctly, weld and braze weld various joints.
- F.** Discuss plasma arc cutting theory and safe operation information.
- G.** Cover the setup and operation of plasma arc cutting systems.
- H.** Utilize free-hand cutting with the plasma arc cutting process.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. STUDENT LEARNING OUTCOMES: *The student will be able to:*

- 1. Properly set up an oxyfuel torch for welding and cutting.
- 2. Properly set up a hand plasma cutting system.
- 3. Fusion weld fillet welds in the flat and horizontal position.
- 4. Braze weld fillet welds in the flat and horizontal position.
- 5. Hand Cut steel sheet metal and plate using Oxy-fuel process.
- 6. Hand Cut ferrous and nonferrous metal using plasma process.
- 7. Use CNC equipment to cut common shapes used in manufacturing.

B. GENERAL LEARNING OUTCOME:

GELO #3: Critical Thinking & Problem Solving

Outcomes:

1. Collect, identify, interpret and analyze data.
2. Synthesize information to arrive at reasoned solutions to problems.
3. Evaluate ideas presented in writing, medial, speech, or artistic presentations.
4. Evaluate the validity of arguments, alternatives, data, outcomes and/or impacts of actions.
5. Acquire and integrate knowledge and construct relationships across disciplines.

IV. CONTENT/UNIT OF INSTRUCTION

- A. Introduction
- B. History of Oxy-fuel and plasma
- C. Gasses for Oxyacetylene
- D. Oxy-Fuel Equipment identification and set up
- E. Oxy-acetylene welding of ferrous metals
- F. Straight line and hole cuts on multiple metal thicknesses using oxy fuel
- G. Welding and brazing techniques on joints
- H. Miscellaneous applications
- I. Equipment set-up for plasma
- J. Hand cutting using plasma
- K. CNC cutting using plasma

V. INSTRUCTIONAL MATERIALS

Required Text(s): Refer to Course Information Document and/or course instructor for required text(s)

Other Resources: Supplemental handouts supplied by instructor.
Notebook.
Tools/Supplies for the 1st term listed on the Welding Technology Program required tool list.

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Lecture
2. Audio-visual
3. Reading assignments
4. Hands-on demonstration

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Written assignments
2. Written tests and quizzes

VIII. SPECIFIC COURSE REQUIREMENTS

A. Student must successful complete all assignments and exams.

B. Grading

1. It is the students' responsibility to make up work when absent.
2. All assigned work must be turned in on the day due or a late grade will be given (10% deduction each late day).
3. The instructor reserves the right to revise assignments and/or grading scale in accordance to the progress of the class at any time of the quarter.

4. Minimum course grade of C (70 Percent) is required.