

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

I. CATALOG DESCRIPTION

Course Number: WELD1123
Course Title: GMAW I
Prerequisite(s): None

Catalog Description: Study of Gas Metal Arc Welding theory, safety, applications, manipulative skills, welding principles, and procedures. Study and use of various filler wires and shielding gases and welding power source set-up. Beginning welding of carbon steel with the Gas Metal Arc Welding process on various joint configurations.

Credit Hours: 3.5
Classroom Hours: 30
Laboratory Hours: 68
Total Contac Hours: 98

II. COURSE OBJECTIVES: *Course will:*

- A.** Teach the theory of the Gas Metal Arc Welding process.
- B.** Teach operation of the Gas Metal Arc Welding process.
- C.** Demonstrate the proper setup and operation of the Gas Metal Arc welder and related equipment.
- D.** Show the student how to gas metal arc weld carbon steel in the flat and horizontal positions on various types of joints with different modes of transfer.
- E.** Include FCAW and GMAW-P.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

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

- 1. Identify and set up various types of GMAW power sources and related equipment.
- 2. Weld in the flat and horizontal position on multiple joint designs and material thicknesses using the GMAW short circuit process.
- 3. Perform fillet welds in the flat and horizontal position using the GMAW spray arc method.
- 4. Weld using FCAW and GMAW-P.

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 GMAW
- C.** Hazards, safety, and protective equipment
- D.** Modes of GMAW transfer
- E.** Equipment for GMAW
- F.** GMAW variables
- G.** Electrode wires
- H.** Shielding gases and related equipment
- I.** Techniques for GMAW
- J.** Setup and operation of GMAW welder/equipment
- K.** Show the student how to gas metal arc weld carbon steel in the flat and horizontal positions on various types of joints with different modes of transfer.

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. Video presentations
- 3. Laboratory demonstrations

VII. METHODS OF EVALUATION

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

- 1. Written assignments
- 2. Written tests and quizzes

Letter grades will be based on the SCC Standard Grade Scale Policy. **Note:** See course information document for specific details on how the course grades will be calculated.

VIII. SPECIFIC COURSE REQUIREMENTS

A. Successful completion of 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.