SOUTHEAST COMMUNITY COLLEGE
MANUFACTURING OCCUPATIONS
WELDING TECHNOLOGY
COURSE SYLLABUS
February 6, 2024

I. CATALOG DESCRIPTION

Course Number: WELD1080
Course Title: GTAW Theory & Lab
Prerequisite(s): University Ag Education or Technical Skills Instructor student, or with permission of welding program chair

Catalog Description: The study of Gas Tungsten Arc Welding Theory, safety, applications, principles, and procedures. Beginning welding of carbon steel with the Gas Tungsten Arc Welding process on various joint configurations. Note: this class will not meet welding program criteria and is not available to students wishing to enter the welding program.

Credit Hours: 3.0
Class Hours: 15
Lab Hours: 90
Total Contact Hours: 105

II. COURSE OBJECTIVES: *Course will:*

A. Cover the use of personal protection equipment required.
B. Apply the Theory of Gas Tungsten Arc Welding Process.
C. Demonstrate the safe operation of Gas Tungsten Arc Welding.
D. Cover the setup of equipment needed to Gas Tungsten Arc Weld.
E. Cover how to correctly install parts for GTAW torch parts for given base metal.
F. Demonstrate proper technique for contaminate free weld.
G. Cover how to follow Welding Procedure Specifications as required on certain welds.
H. Demonstrate the proper setup and operation of the Gas Tungsten Arc Welder and related equipment.
I. Cover gas tungsten arc welding carbon steel in the flat and horizontal positions on various types of joints with different modes of transfer.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. STUDENT LEARNING OUTCOMES: *Student will be able to:*

1. Understand the theory of the Gas Tungsten Arc Welding process.
2. Understand the safe operation of the Gas Tungsten Arc Welding process.
3. Demonstrate the proper setup and operation of a Gas Tungsten Arc Welder.
4. Initiate an arc by the touch start and lift arc methods.
5. Gas Tungsten Arc Weld Carbon Steel in various positions and joint types.

B. GENERAL EDUCATION LEARNING OUTCOMES:

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 GTAW
C. Hazards, safety, and protective equipment
D. Equipment for manual GTAW
E. Electrodes
F. Shielding gas and related equipment
G. Filler metals
H. Techniques for GTAW
I. Setup and Operation of GTAW welder/equipment
J. Setup of equipment

V. INSTRUCTIONAL MATERIALS

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

B. Other Resources: Supplemental handouts supplied by instructor.
Notebook
Tools/supplies for the 1st and 2nd terms 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. Small and large group discussion
3. Video presentation
4. Demonstrations
5. Project boards
6. Flip charts
7. Handouts
8. Observations
9. Assigned lab projects
10. Field trips

VII. METHODS OF EVALUATION

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

1. Notebook (if required)
2. Quizzes
3. Tests
4. Lab grades

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. Student must:

1. Complete all tests, projects, assignments, and notebook (if required).
2. Earn a final grade of C (70%) or higher.

B. Program shop safety rules will be followed. Please see the course outline for an additional safety rules established by the instructor.