Course Information Form (CIF)

Course Code: WLD 213

Course Title: Advanced Gas Tungsten Arc Welding

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 48.0508
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 1-2-2
Credit Hour Distribution:

Lecture: 1	Lab: 2	Clinical: 0	**Total: 2**

General Course Information

Catalog Description

Students will prepare tungsten electrodes to accommodate various metal types and thicknesses, 16 gauge to 1/4 plate; flat, out-of-position, and multipath procedures. Metals include mild, stainless steel, and aluminum.

General Course Objectives

Students will learn to safely set up and use Gas Tungsten Arc Welding (GTAW) equipment, and develop advanced manipulative skills in all positions with steel, aluminum, and stainless.

Minimum Placement Levels

English	Reading	Math
Placement into ENG 098	Placement into CCS 098	Placement into MAT 059

Prerequisites

Credit in WLD 110 or WLD 111
Concurrent enrollment in WLD 113

Methods of Evaluation

Minimum evaluation methods include: 2-4 weekly lab assignments to evaluate skill proficiency (70% of total points); 2 written exams and 1 quiz to evaluate knowledge acquired in classroom setting (30% of total points).

Instructional Materials and Additional Supplies

Gas Tungsten ARC Welding Handbook, by Minnick.

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Overview of the Course, the Course Outline, and Introduction to Advanced GTAW	1. List the objectives of the course. 2. Describe the methods of evaluation. 3. List the grade scale to be used for the course.	1	0	0
Pre-Weld Preparations and Procedures	1. List several steps that must be taken prior to welding with the GTAW process. 2. List operations that must be completed after welding with the GTAW process.	2	0	0
GTAW Skills	1. Complete the following: corner joint (st 1), edge joint (st 1), and T-joint (AL). 2. Complete the following welding techniques: vertical down welding, vertical up welding, horizontal position welding, and overhead welding. 3. Complete a fabrication project. 4. Set up and complete the final assigned GTAW proficiency.	0	26	0
Electrodes, Shielding Gas, and Filler Metal	1. Describe the types of tungsten electrodes available and the application of each. 2. Describe the types of shielding gases available and the application of these gases to metal. 3. List the types and selection of fill rods.	2	0	0
Welding Applications	1. List the versatility of welding applications used in technology today. 2. List standards that are followed in the applications of GTAW.	1	0	0
Cost of Gas Tungsten Arc Welding	1. List the major items used to calculate the cost of GTAW. 2. List the formulas to determine the cost of a welding job.	2	0	0
Welding Metallurgy	1. List the types of properties of a weld. 2. Describe the three basic micro structures within a weldment. 3. List the metals weldable with the GTAW process.	1	0	0
Weld, Joint Design, and Welding Symbols	1. Identify several factors that influence the joint design to use. 2. List and define the parts of a weld. 3. List the types of welding positions. 4. Identify the many types of weld joint designs. 5. Read and differentiate welding symbols.	3	2	0
Welder Training and Qualifications	1. Identify and use the training, skills, and knowledge needed in the variety of operational areas in GTAW. 2. Review for the final exam.	3	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
15	30	0