Course Information Form (CIF)

Course Code: WLD 110

Course Title: Beginning Gas and 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

Exploratory class that provides introductory theory and practice in oxyacetylene and shielded metal arc welding. Includes oxyacetylene fusion welding in the flat position, shielded metal arc welding in the flat position, manual oxyfuel cutting, and plasma arc cutting with a brief introduction to gas metal arc welding and gas tungsten arc welding.

General Course Objectives

Students will be able to demonstrate safe welding practices; understand the fundamentals of arc and oxyacetylene welding; demonstrate practical applications of the shielded metal arc and oxyacetylene processes; and produce student welds that meet the American Welding Society (AWS) standards and guidelines.

Minimum Placement Levels

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

Prerequisites

None

Methods of Evaluation

Students will be graded on 80% skill proficiency (a minimum of 12 lab practicals and 2 safety quizzes) and 20% exams (1 final exam).

Instructional Materials and Additional Supplies

Welding: Principles and Practices, by Bohnart
Welding gloves, safety glasses.

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
Course Overview	1. List course objectives, methods of evaluation, and the grading scale used.	1	0	0
Welding Terminology	1. Identify basic joints and types of welds. 2. Name parts of the weld. 3. Recall the standards of visual inspection of welds.	2	0	0
Oxyacetylene Principles and Practices	1. Describe the safe handling and storage of acetylene and oxygen cylinders. 2. Explain the setup of an oxyacetylene station. 3. Describe the proper procedure for lighting the oxyacetylene torch, adjusting the flame, and shutting down the torch.	2	0	0
Oxyacetylene Theory	1. Explain the fusion and adhesion processes. 2. List the criteria for selection of the proper welding tip. 3. Recognize carburizing, neutral, and oxidizing flames. 4. Describe the practical uses of the oxyacetylene fusion and adhesion processes. 5. Describe the metals that are weldable with the oxyacetylene process.	2	0	0
Oxyacetylene Practice - Fusion	1. Fuse mild steel without the addition of fill material (flat position). 2. Fuse mild steel with the addition of fill material (flat position).	0	7	0
Oxy-fuel Cutting	1. Describe the principles of oxygen fuel cutting. 2. List the common fuel gases and know their advantages. 3. Describe the proper setup of oxygen fuel cutting equipment. 4. Describe and demonstrate safe and effective manual cutting practices.	1	0.5	0
Arc Welding Safety	1. List the hazards of the shielded metal arc welding process. 2. Select proper clothing and eye protection. 3. Demonstrate safe welding practices.	1	0	0
Arc Welding Theory	1. Describe the components of the arc welding process and understand the function of each. 2. Describe the principles of alternating and direct current. 3. List the variables in the shielded metal arc welding process, and know their effects on weld quality.	3	0	0
Arc Welding Equipment and Consumables	1. Describe the proper setup of shielded metal arc welding equipment. 2. Explain the variety of shielded metal arc welding electrodes and the American Welding Society (AWS) classification system for them.	2	0	0
Shielded Metal Arc Welding (SMAW) Practice	1. Weld basic joints using fast-follow, fast-freeze, and fast-fill electrodes in the flat position.	0	20.5	0
Plasma Arc Cutting	1. Demonstrate the fundamentals of arc cutting. 2. Describe proper procedures for plasma arc cutting. 3. Demonstrate straight and circular cuts.	1	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
15	30	0