Course Information Form (CIF)

Course Code: WLX 114

Course Title: Introduction to 6011 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: 0.5-1-1
Credit Hour Distribution:

Lecture: 0.5	Lab: 1	Clinical: 0	**Total: 1**

General Course Information

Catalog Description

Introductory theory and practice in shielded metal arc welding. Includes shielded metal arc welding in all positions on plate steel with 6011 electrodes, with emphasis on skill development and plasma arc cutting.

General Course Objectives

To develop in students safe working habits, the ability to select, maintain, and use arc welders; a working knowledge of, and an appreciation for, welding and its effect on industry; a foundation of basic knowledge which may be used both vocationally and avocationally; and the self-confidence to systematically evaluate situations to make sound decisions based on this evaluation. Utilization of E-6011 electrode.

Minimum Placement Levels

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

Prerequisites

None

Methods of Evaluation

10 lab assignments to evaluate competency level.
Online assessments over course content.

Instructional Materials and Additional Supplies

Cobra with Tooling-U Content
Access to a device capable of accessing Cobra and Tooling-U content.

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
Welding Safety	1. Demonstrate and observe proper safety procedures at all times while using electric arc equipment. 2. Identify the equipment and materials essential for safe welding. 3. Explain the safety precautions for electric arc welding. 4. Describe the proper clothing to be worn in the welding shop.	2	2	0
Arc Welding Theory, Practice, and Equipment	1. Explain how fusion is achieved in electric arc welding. 2. Explain five items which affect the quality of a weld. 3. Explain how molten metal is transferred from the electrode to the plate. 4. Describe the safety precautions to be taken in electric arc welding.	1.5	4	0
Welding Rod and Electrode Arc Selection	1. Explain the American Welding Society (AWS) code for oxyacetylene welding rods. 2. Explain the four parts to the AWS electrode identification code. 3. Cite examples of the uses for E-6010, E-6011, and E-7018 electrodes.	0.5	1	0
Off-position Welding	1. Explain each of the four off positions in welding. 2. Explain the major problems which may be encountered in off-position welding. 3. Explain how to counter the effects of the above-mentioned problems on the weld. 4. Reproduce the techniques used in arc welding in each of the off positions.	1	3	0
Arc Cutting	1. List the steps for cutting with the plasma arc cutting machine. 2. List the safety precautions to be used in electric arc cutting. 3. Describe the procedure used in the cutting of a hole in a piece of steel plate with the arc cutting process.	0.5	1.5	0
Using the Carbon Arc Torch	1. Describe the principles of the operation of the carbon arc torch. 2. Identify common uses of the carbon arc torch. 3. Compare and contrast the uses of the carbon arc torch and oxyacetylene torch. 4. List the hazards and safety precautions associated with the carbon arc torch.	0.5	1.5	0
Gas Shielded Welding	1. List the advantages and disadvantages of gas shielded welding. 2. Describe the gases used in welding. 3. Describe the three current types used in inert gas welding and the advantages and disadvantages of each.	1.5	2	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
7.5	15	0