Western Technical College

10442105 Introduction to Welding

Course Outcome Summary

Course Information

Description	A 1 credit course to prepare welding students to be successful in the lab and online. Topics covered will include Blackboard (or current LMS), email, and basic metal shop safety. The students will also get introduced to the most frequently used equipment in the shop such as welders, grinders, saws, and shears.
Career Cluster	Manufacturing
Instructional Level	Associate Degree Courses
Total Credits	1
Total Hours	18

Textbooks

No textbook required.

Program Outcomes

1. Demonstrate industry recognized safety practices.

Course Competencies

1. Develop skills for online learning.

Assessment Strategies

1.1. Written Products

Criteria

You will know you are successful when

1.1. you complete the Student Readiness Training as assigned when registering.
1.2. you respond to an email from your instructor.
1.3. you submit assignments in Blackboard.
1.4. you respond to instructor feedback from Blackboard.

Learning Objectives

1.a. Login and use your Western email address.

1.b. Login to your Blackboard courses.
1.c. Identify assignment tasks in Blackboard.
1.d. Review "My Grades" in Blackboard.
1.e. Identify contact information for instructors.

2. Examine shop safety protocols.

Assessment Strategies

2.1. Skill Demonstration
2.2. Written Product

Criteria

You will know you are successful when

2.1. you wear PPE in all lab/ship settings.
2.2. you maintain a clean work environment (lab space, welding booths, and shop area).
2.3. you summarize safety protocols for operating all tools and equipment.
2.4. you adhere to college and other regulations for waste metals.

Learning Objectives

2.a. Identify Personal Protective Equipment (PPE) needed in a welding lab/shop.
2.b. Identify specifications for shop cleanliness.
2.c. Examine tool safety procedures and specifications.
2.d. Comply with college, local, state, and federal regulations (as applicable) for metals waste management.

3. Follow welding shop tool management and organization.

Assessment Strategies

3.1. Skill Demonstration

Criteria

You will know you are successful when

3.1. you follow shop and workbench organization protocols.
3.2. you name all tools and equipment in the shop.
3.3. you describe the features of a welding booth.
3.4. you organize tool bags and personal space.

Learning Objectives

3.a. Identify lab organization procedures.
3.b. Identify types of tools and equipment in the lab/shop.
3.c. Identify aspects of a welding booth.
3.d. Keep personal space and equipment (i.e. tool bags) organized.

4. Use basic lab/shop tools according to specifications.

Assessment Strategies

4.1. Skill Demonstration

Criteria

You will know you are successful when

4.1. you use measuring devices.
4.2. you select and use pliers for intended purposes.
4.3. you use common tools correctly (wrenches, hammers, screwdrivers, etc.)
4.4. you select and use a variety of wire brushes for intended application or metal.

Learning Objectives

4.a. Use measuring devices accurately.
4.b. Identify types of pliers and purpose of each.
4.c. Identify chipping hammer and wire brushes.
4.d. Identify other common tools (ex: Allen wrenches)

5. Identify fundamentals of welding.

Assessment Strategies

5.1. Demonstration
5.2. Written Product

Criteria

You will know you are successful when

5.1. you identify 5 joints and 6 positions.
5.2. you identify equipment components according to operations manual.
5.3. you set up welding gun components according to operations manual and metal election.
5.4. you follow safety requirements (including PPE) for all welding processes.
5.5. you describe the "puddle" and its importance in welding.

Learning Objectives

5.a. Explore the 5 joints and 6 positions common in welding.
5.b. Identify common welding modes on welding machines.
5.c. Explore welding machine setup.
5.d. Identify common processes for every welding machine.
5.e. Identify processes unique to specific machines or welding applications.
5.f. Follow safety protocols for each welding machine.
5.g. Examine what is meant by "the puddle" in welding.

6. Explore basic metallurgy for the welding profession.

Assessment Strategies

6.1. Written Product

Criteria

You will know you are successful when

6.1. you summarize filler metal organization schema.
6.2. you explain the differences between ferrous and non-ferrous metals.
6.3. you visually identify which metals in the shop/lab are ferrous and which are non-ferrous.
6.4. you summarize metal contamination.
6.5. you apply methods to avoid metal contamination.

Learning Objectives

6.a. Examine filler metal organization (i.e size, type, etc.)
6.b. Identify ferrous and non-ferrous metals.
6.c. Describe what metal contamination is and how to avoid it.
6.d. Choose correct wire brush for types of metal.

7. Use grinding tools per specifications.

Assessment Strategies

7.1. Skill Demonstration

Criteria

You will know you are successful when

7.1. you differentiate between grinding, sanding, and polishing uses in the lab.
7.2. you select the equipment needed for the intended application.
7.3. you grind a welding table.
7.4. you maintain grinding equipment.

Learning Objectives

7.a. Define grinding, sanding, and polishing.
7.b. Identify when to use each application.
7.c. Differentiate between grinding, sanding, and polishing equipment.
7.d. Examine maintenance procedures for tools.
7.e. Demonstrate how to grind welding tables.