



Course Outcome Summary

Required Program Core Course

WELD 114 – GMAW & GTAW Applications

Course Information

Division	Applied Science & Engineering Technology
Contact Hours	120
Theory	40
Lab Hours	80
Total Credits	6

Prerequisites **WELD 100**

Course Description

GMAW and GTAW Applications is designed to develop the skill levels of welders and introduce FCAW-G. Transfer modes are explained and applied to class objectives. Acceptable levels of weld quality are significantly increased in this course as welders begin welding nonferrous metals, weld in all positions, and complete more demanding destructive tests on their projects.

This course is a required core course for students pursuing an AAS Degree, Advanced Welding Certificate, or Basic Welding Certificate in Welding Technology.

Program Outcomes Addressed by this Course:

Upon successful completion of this course, students should be able to meet the program outcomes listed below:

1. Demonstrate safe welding, fabricating, and thermal cutting practices.
2. Perform cutting and gouging procedures using thermal cutting techniques.
3. Follow procedures to deposit sound welds using Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), and Gas Tungsten Arc Welding (GTAW) processes.
4. Describe American Welding Society (AWS) Standards as well as industrial standards as they relate to welding.
5. Identify and solve common weldability problems.
6. Demonstrate the proper use and care of common welding and fabricating equipment.
7. Identify weld defects, explain methods to prevent defects, and demonstrate proper defect repair.
8. Read prints and interpret welding symbols.
9. Explain knowledge of basic material and welding metallurgy.
10. Specify proper Personal Protective Equipment (PPE) required for applicable work environments.

Course Outcomes

In order to evidence success in this course, the students will be able to:

1. Demonstrate ability to prepare welding & bend test specimens and perform guided bend tests.
 - a. Applies to program outcome 3, 4, 5, 6, 7 & 10.
2. Demonstrate ability to pass GMAW bend tests in the 1G, 2G, 3G, & 4G positions.
 - a. Applies to program outcome 3, 4, 5, 6, 7 & 10.
3. Demonstrate proficiency in welding using GMAW process in all positions.
 - a. Applies to program outcome 3, 4, 5, 6, 7 & 10.
4. Demonstrate proficiency in welding using GTAW process on stainless steel in all positions.
 - a. Applies to program outcome 3, 4, 5, 6, 7 & 10.
5. Demonstrate proficiency in welding using GTAW process on aluminum in all positions.
 - a. Applies to program outcome 3, 4, 5, 6, 7 & 10.
6. Explain differences between metal transfer modes in GMAW.
 - a. Applies to program outcome 5 and 9.



MONROE COUNTY
COMMUNITY COLLEGE

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7. Practice safe welding, thermal cutting, and grinding habits in a lab environment.
 - a. Applies to program outcome 1 and 10.
8. Integrate thermal cutting, gouging, and grinding operations as required to complete work.
 - a. Applies to program outcomes 1, 2, 6, 9, & 10.
9. Follow Welding Procedure Specifications (WPS), verbal, and written instructions to complete work.
 - a. Applies to program outcome 1, 2, 3, 4, 6, & 10.
10. Demonstrate the ability to properly set up, operate, and shut down applicable welding and cutting equipment.
 - a. Applies to program outcome 1, 2, 3, 6, & 10.
11. Work productively individually and in collaboration with others.
12. Perform destructive and non-destructive weld evaluations.
 - a. Applies to program outcome 3, 4, 5, 7, 9, & 10.

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