Washtenaw Community College Comprehensive Report

WAF 226 Specialized Welding Procedures
Effective Term: Winter 2012

Course Cover

Division: Vocational Technologies
Department: Welding and Fabrication
Discipline: Welding and Fabrication
Course Number: 226
Org Number: 14610
Full Course Title: Specialized Welding Procedures
Transcript Title: Specialized Welding Procedures
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Three Year Review / Assessment Report
Change Information:
Course description
Pre-requisite, co-requisite, or enrollment restrictions
Outcomes/Assessment
Objectives/Evaluation
Rationale: Regular three year review
Proposed Start Semester: Winter 2012
Course Description:

In this course, students are exposed to uncommon and unique welding process and material combinations. Four welding processes, GMAW, GTAW, SMAW and OFW will be performed on ferrous and non-ferrous materials. Advanced welding theories, filler metal classification, identification and proper selection for material type is addressed.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 30 **Student:** 30
Lab: Instructor: 90 **Student:** 90
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 120 **Student:** 120
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

Prerequisite
Academic Reading and Writing Levels of 6
and
Prerequisite

WAF 123 minimum grade "C"
and
Prerequisite
WAF 124 minimum grade "C"
and
Prerequisite
WAF 215 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Recognize and apply welding vocabulary.
   Assessment 1
   Assessment Tool: Written exam
   Assessment Date: Fall 2012
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 80% of students will score 90% or higher
   Who will score and analyze the data: Departmental faculty

2. Recognize and interpret welding theory.
   Assessment 1
   Assessment Tool: Written exam
   Assessment Date: Fall 2012
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 80% of students will score 90% or higher
   Who will score and analyze the data: Departmental faculty

3. Perform standard welds using the Oxy-fuel welding process on materials such as aluminum, stainless, copper and cast iron in various positions.
   Assessment 1
   Assessment Tool: Welded samples
   Assessment Date: Fall 2012
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: The welds will be scored as pass or fail in meeting AWS D1.1 code.
   Standard of success to be used for this assessment: 80% of students will create welds in accordance with AWS D1.1 code.
   Who will score and analyze the data: Departmental faculty

4. Weld a butt, lap and tee joint on aluminum and stainless steel in the vertical position with the GTAW process.
   Assessment 1
   Assessment Tool: Welded samples

Assessment Date: Fall 2012
Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: The welds will be scored as pass or fail in meeting AWS D1.2 and D1.6 codes.
Standard of success to be used for this assessment: 80% of students will create welds in accordance with AWS D1.2 and D1.6 codes.
Who will score and analyze the data: Departmental faculty

5. Weld 6" OD steel tubing in the 1G, 2G, and 5G positions with the GTAW process.
   Assessment 1
   Assessment Tool: Welded samples
   Assessment Date: Fall 2012
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: The welds will be scored as pass or fail in meeting AWS D1.1 code.
   Standard of success to be used for this assessment: 80% of students will create welds in accordance with AWS D1.1 code.
   Who will score and analyze the data: Departmental faculty

6. Weld a butt joint in the flat and vertical positions with the OAW and GTAW processes.
   Assessment 1
   Assessment Tool: Welded samples
   Assessment Date: Fall 2012
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: The welds will be measured as pass or fail in accordance with AWS A5.7 code.
   Standard of success to be used for this assessment: 80% of students will create welds in accordance with AWS A5.7 code.
   Who will score and analyze the data: Departmental faculty

Course Objectives

1. Demonstrate proper shop safety while working in the welding lab.

   Matched Outcomes

2. Recall specific welding theories as applied to the various assigned welds.

   Matched Outcomes

3. Weld an outside corner joint on grey cast iron in the flat position with the OAW and GTAW processes.

   Matched Outcomes

4. Weld a butt joint on aluminum in the flat and vertical positions with the OAW process.

   Matched Outcomes

5. Weld a butt joint in the flat and vertical positions on copper plate with the OAW and GTAW processes.

   Matched Outcomes

6. Build-up hard-surfacing material on 1/4" steel with the OAW and GTAW processes to repair worn base metal.

   Matched Outcomes

7. Weld an outside corner and a lap joint on 1/4" steel in the horizontal, vertical and overhead positions with the GMAW process using carbon dioxide for shielding gas.

   Matched Outcomes

8. Weld a V-groove in the flat and vertical positions using 308 stainless for the root pass with the SMAW process.

   Matched Outcomes

9. Use stringer and weave beads for hot and cover passes.

   Matched Outcomes

10. In the 5G position, student will deposit root pass using 308 stainless then run mild steel stringer and weave bead for filler and cover.
    Matched Outcomes

11. Weld 6" OD steel tubing with GTAW in the 1G, 2G and 5G positions.
    Matched Outcomes

12. Weld an outside corner joint in the horizontal and vertical positions with the GMAW process.

    Matched Outcomes

13. Weld a 1/2" V-groove joint in the vertical positions with E6010.

    Matched Outcomes

14. Weld a butt joint in the flat and vertical position on stainless steel with the OFW process.

    Matched Outcomes

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals

Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Amanda Scheffler	*Faculty Preparer*	*Aug 08, 2011*
Department Chair/Area Director:		
Glenn Kay II	*Recommend Approval*	*Oct 05, 2011*
Dean:		
Ross Gordon	*Recommend Approval*	*Oct 18, 2011*
Vice President for Instruction:		
Stuart Blacklaw	*Approve*	*Nov 15, 2011*