

Washtenaw Community College Comprehensive Report

WAF 112 Shielded Metal Arc Welding Effective Term: Winter 2012

Course Cover

Division: Vocational Technologies

Department: Welding and Fabrication

Discipline: Welding and Fabrication

Course Number: 112

Org Number: 14610

Full Course Title: Shielded Metal Arc Welding

Transcript Title: Shielded Metal Arc Welding

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 title

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: This course includes welding vocabulary and theory related to the shielded metal arc welding (SMAW) process, also known as "stick" welding. Students will learn to weld on DC+, DC- and AC polarities on various thicknesses of mild steel. Electrode identification, classification and proper selection for various applications will be exercised. Students will apply safe work practices related to the arc welding process in a laboratory setting. The title of this course was previously Welding II Basic Arc.

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 100 minimum grade "C"; may enroll concurrently
or

Prerequisite

WAF 102 minimum grade "C"; may enroll concurrently
or

Prerequisite

WAF 105 minimum grade "C"; may enroll concurrently

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. Shielded metal arc weld a butt, lap and tee joint in the basic flat and horizontal 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. Shielded metal arc weld a butt, lap and tee joint in the advanced vertical and overhead 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

Course Objectives

1. Set up SMAW equipment according to the industry standard.

Matched Outcomes

2. Demonstrate appropriate safety measures in an arc welding environment.

Matched Outcomes

3. Weld a consistent bead in all positions using E-6011 and E-7018 electrodes.

Matched Outcomes

4. Identify five common welding electrodes.

Matched Outcomes

5. Describe two methods of preparing steel for butt joints.

Matched Outcomes

6. Describe a land and the reason for its use.

Matched Outcomes

7. Weld a butt joint in all positions with E6011 and E7018 electrodes achieving 100% penetration.

Matched Outcomes

8. Identify and explain a lap weld.

Matched Outcomes

9. Define undercut and explain its effect on a weld.

Matched Outcomes

10. Weld a lap joint in all positions with E-6011 and E-7018 electrodes.

Matched Outcomes

11. Identify and explain a fillet and a groove weld.

Matched Outcomes

12. Describe the reasons for chipping and brushing welds.

Matched Outcomes

13. Describe out-of-position welding and problems encountered with it.

Matched Outcomes

14. Explain why lap welds are avoided where possible.

Matched Outcomes

15. Weld a tee joint in all positions with E-6011 and E-7018.

Matched Outcomes

16. Describe what takes place in AC welding.

Matched Outcomes

17. Weld a bead in the overhead position with AC.

Matched Outcomes

18. Weld a tee joint in the overhead position with AC.

Matched Outcomes

19. Weld a vertical-down bead and tee joint with E-6011 on the 14 ga mild steel.

Matched Outcomes

20. Describe two electrode angles that can be used with vertical down welding.

Matched Outcomes

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer

Faculty Preparer:

Amanda Scheffler

Action

Faculty Preparer

Date

Jul 14, 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*