

Washtenaw Community College Comprehensive Report

WAF 230 Advanced Shielded Metal Arc Welding (SMAW) Effective Term: Winter 2021

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Welding and Fabrication
Discipline: Welding and Fabrication
Course Number: 230
Org Number: 14600
Full Course Title: Advanced Shielded Metal Arc Welding (SMAW)
Transcript Title: Adv 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 description
 Outcomes/Assessment
 Objectives/Evaluation

Rationale: Update of master syllabus based on the assessment of the course.

Proposed Start Semester: Winter 2020

Course Description: In this course, students further develop their Shielded Metal Arc Welding (SMAW) skills by learning the American Welding Society (AWS) codes and standards and applying them to welds being performed. Students will create welded samples including sheet metal, plate, "C" channel and "H" beam joints in all positions as well as pipe in the 5F/G and 6G positions with multiple electrodes.

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

Level 1

Requisites

Prerequisite

WAF 130 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Ferris State University

Other : Pennsylvania College of Technology

Student Learning Outcomes

1. Weld pipe in the 2G, 5G and 6G positions.

Assessment 1

Assessment Tool: Welded samples per skills checklist

Assessment Date: Fall 2020

Assessment Cycle: Annually

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Outcome-related welds will be scored as pass or fail in meeting an applicable AWS welding code.

Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with an AWS welding code.

Who will score and analyze the data: Departmental faculty

2. Weld sheet, plate, "C" channel and "H" beams in all positions.

Assessment 1

Assessment Tool: Welded samples per skills checklist

Assessment Date: Fall 2020

Assessment Cycle: Annually

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Outcome-related welds will be scored as pass or fail in meeting an applicable AWS welding code.

Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with an AWS welding code.

Who will score and analyze the data: Departmental faculty

3. Identify American Welding Society (AWS) codes and standards for weld qualifications.

Assessment 1

Assessment Tool: Outcome-related questions from a departmentally-developed exam

Assessment Date: Fall 2020

Assessment Cycle: Annually

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 80% or higher on the outcome-related questions

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Weld groove, lap, tee and corner welds in the vertical position using multiple passes with the E6010 electrode on carbon steel plate.
2. Weld groove, lap, tee and corner welds in the vertical position using multiple passes with the E7018 electrode on carbon steel plate.
3. Weld groove, lap, tee and corner welds in the overhead position using multiple passes with the E6010 electrode on carbon steel plate.

4. Weld groove, lap, tee and corner welds in the overhead position using multiple passes with the E7018 electrode on carbon steel plate.
5. Weld structural shapes in the 2F, 3F, 4F and 5F positions using multiple passes with the E6010 electrode on carbon steel.
6. Weld structural shapes in the 2F, 3F, 4F and 5F positions using multiple passes with the E7018 electrode on carbon steel.
7. Weld pipe in the 5F/G and 6G positions using E6010 and E7018 electrodes.
8. Weld a tee and lap weld on carbon steel to stainless steel (dissimilar metals) using an ER309 electrode in the horizontal and vertical positions.
9. Perform a weld on plate or pipe, in any position, in accordance with a Weld Procedure Specification (WPS) to achieve certification level acceptance criteria.

New Resources for Course

Course Textbooks/Resources

Textbooks

David J. Hoffman, Kevin R. Dahle, David J. Fisher. *Welding*, 2nd ed. Pearson, 2017, ISBN: 132350835X.

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Amanda Scheffler</i>	<i>Faculty Preparer</i>	<i>Feb 04, 2020</i>
Department Chair/Area Director: <i>Glenn Kay II</i>	<i>Recommend Approval</i>	<i>Feb 11, 2020</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Mar 10, 2020</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Oct 30, 2020</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Nov 04, 2020</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Nov 09, 2020</i>