Washtenaw Community College Comprehensive Report

WAF 232 Semi-Automatic Welding Processes
Effective Term: Fall 2016

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Welding and Fabrication
Discipline: Welding and Fabrication
Course Number: 232
Org Number: 14600
Full Course Title: Semi-Automatic Welding Processes
Transcript Title: Semi-Automatic Weld Processes
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Course Change
Change Information:
Course discipline code & number
Course title
Course description
Outcomes/Assessment
Objectives/Evaluation
Other:
Rationale: This course is being updated for the new WAF program and to meet the current needs of the welding industry.
Proposed Start Semester: Fall 2016
Course Description: In this course, students enhance their welding skills in the Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW) and Metal Cored Arc Welding (MCAW) processes by performing advanced welding techniques most commonly used in the manufacturing, automotive and construction industries. Other topics include filler metal classification and specifications, codes and standards set forth by the American Welding Society (AWS). This course contains material previously taught in WAF 288.

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 126 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Properly set and adjust welding equipment and choose appropriate filler material to match the base metals being welded.
   Assessment 1
   Assessment Tool: Lab assignment
   Assessment Date: Fall 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Skill Checklist with rubric
   Standard of success to be used for this assessment: 80% of students will score 80% or higher.
   Who will score and analyze the data: Departmental faculty

2. Perform surfacing, groove, tee, lap, corner and edge welds in the flat, horizontal, vertical and overhead positions on carbon steel, stainless steel and aluminum.
   Assessment 1
   Assessment Tool: Welded samples
   Assessment Date: Fall 2019
   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 accordance with applicable AWS welding codes.
   Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS welding codes.
   Who will score and analyze the data: Departmental faculty

3. Perform a weld on a groove, lap and tee joint in the GMAW pulse and spray transfers.
   Assessment 1
   Assessment Tool: Welded samples
   Assessment Date: Fall 2019
   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 accordance with applicable AWS welding codes.
   Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS welding codes.
   Who will score and analyze the data: Departmental faculty

Course Objectives

1. Apply safe work practices when assembling equipment for the GMAW, FCAW and MCAW processes.
2. Inspect work area and welding equipment for any safety hazards prior to welding.
3. Select correct welding gas and filler wire for base material being welded.
4. Properly setup the welding machine to weld carbon steel, stainless steel and aluminum.

5. Perform surfacing (pad) welds on carbon steel, stainless steel and aluminum in the flat, horizontal, vertical and overhead positions on plate using the GMAW, FCAW and MCAW processes.
6. Weld a groove, tee, lap, corner and edge in the flat, horizontal, vertical and overhead positions on carbon steel plate in the GMAW, FCAW and MCAW processes.
7. Run a bead using cross hatching technique with hard surfacing filler material on carbon steel plate using the FCAW process.
8. Weld a groove, tee, lap, corner and edge in the flat, horizontal, vertical and overhead positions on carbon steel, stainless steel and aluminum sheet and plate in the GMAW process.
9. Perform a weld on plate, in any position, in accordance with a Weld Procedure Specification (WPS) to achieve certification.

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 30, 2015*
Department Chair/Area Director:		
Glenn Kay II	*Recommend Approval*	*Aug 30, 2015*
Dean:		
Brandon Tucker	*Recommend Approval*	*Oct 06, 2015*
Curriculum Committee Chair:		
Kelley Gottschang	*Recommend Approval*	*Nov 30, 2015*
Assessment Committee Chair:		
Michelle Garey	*Recommend Approval*	*Dec 10, 2015*
Vice President for Instruction:		
Michael Nealon	*Approve*	*Dec 14, 2015*