

Washtenaw Community College Comprehensive Report

WAF 105 Introduction to Welding Processes Effective Term: Spring/Summer 2020

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Welding and Fabrication
Discipline: Welding and Fabrication
Course Number: 105
Org Number: 14600
Full Course Title: Introduction to Welding Processes
Transcript Title: Intro to Welding Processes
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
 Other:

Rationale: The department is reducing the standards of success based on assessment data and to align with expectations for an introductory welding course.

Proposed Start Semester: Winter 2020

Course Description: In this basic welding class, students are introduced to four welding processes: oxy-fuel welding (OFW), gas tungsten arc welding (GTAW), shielded metal arc welding (SMAW) and gas metal arc welding (GMAW). One cutting process is also explored: oxy-fuel cutting (OFC). Students will learn welding vocabulary, welding theory, safe handling practices and set-up of all related welding equipment. Students will weld using each process on ferrous or non-ferrous materials that are commonly used in industries such as automotive, manufacturing, structural and artistic sculpture work.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 15 **Student:** 15

Lab: Instructor: 45 **Student:** 45

Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60

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

General Education

Degree Attributes

High School articulation approved

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Recognize and apply welding vocabulary.

Assessment 1

Assessment Tool: Written exam

Assessment Date: Winter 2022

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 80% 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: Winter 2022

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 80% or higher

Who will score and analyze the data: Departmental faculty

3. Perform a variety of welds on 14 gauge or 1/4" steel using GMAW, OFW, and SMAW processes as well as GTAW weld 1/8" aluminum in the flat position.

Assessment 1

Assessment Tool: Welded samples

Assessment Date: Winter 2022

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 the AWS D1.1 and D1.2 code.

Standard of success to be used for this assessment: 80% of students will create welds in three of the four welding processes in accordance with AWS D1.1 and D1.2 code.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Properly set up oxy-fuel welding equipment for use and check for leaks.
2. Light the oxy-fuel torch and demonstrate a carburizing, neutral and oxidizing flame.
3. Properly set-up arc welding equipment for use for all three arc welding processes; SMAW, GMAW and GTAW.
4. Run a bead in the flat position with OFW, SMAW, GMAW and GTAW processes.
5. Weld a butt joint in the flat position achieving 100% penetration with OFW, GTAW, GMAW and SMAW processes.
6. Weld a tee joint in the flat position with the GTAW, OFW, GMAW and SMAW processes.

7. Weld a lap joint in the flat position with the OFW, GTAW, GMAW, and SMAW processes.
8. Identify at least five common welding electrodes.
9. Oxy-fuel cut (OFC) a straight cut, a beveled cut and a circular cut on 1/4" mild steel.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Glenn Kay II</i>	<i>Faculty Preparer</i>	<i>Aug 08, 2019</i>
Department Chair/Area Director: <i>Glenn Kay II</i>	<i>Recommend Approval</i>	<i>Aug 08, 2019</i>
Dean: <i>Brandon Tucker</i>	<i>Recommend Approval</i>	<i>Aug 22, 2019</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Oct 17, 2019</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Oct 18, 2019</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Oct 18, 2019</i>

Washtenaw Community College Comprehensive Report

WAF 105 Introduction to Welding Processes Effective Term: Winter 2012

Course Cover

Division: Vocational Technologies

Department: Welding and Fabrication

Discipline: Welding and Fabrication

Course Number: 105

Org Number: 14610

Full Course Title: Introduction to Welding Processes

Transcript Title: Intro to Welding Processes

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

Outcomes/Assessment

Objectives/Evaluation

Rationale: Regular three year review

Proposed Start Semester: Winter 2012

Course Description: This is a basic welding class that introduces four welding processes; oxy-fuel welding (OFW), gas tungsten arc welding (GTAW), shielded metal arc welding (SMAW) and gas metal arc welding (GMAW). One cutting process is also explored; oxy-fuel cutting (OFC). The student will learn welding vocabulary, welding theory, safe handling practices and set-up of all related welding equipment. Students will weld using each process on ferrous or non-ferrous materials. The title of this course was previously Welding for Art and Engineering.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 15 Student: 15

Lab: Instructor: 45 Student: 45

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 60 Student: 60

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

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. Students will safely perform a variety of welds on 14 gauge or 1/4" steel using GMAW, OFW, and SMAW processes as well as GTAW weld 1/8" aluminum in the flat position.

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 the AWS D1.1 and D1.2 code.

Standard of success to be used for this assessment: 80% of students will create welds in three of the four welding processes in accordance with AWS D1.1 and D1.2 code.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Properly set up oxy-fuel welding equipment for use and check for leaks.

Matched Outcomes

2. Light the oxy-fuel torch and demonstrate a carburizing, neutral and oxidizing flame.

Matched Outcomes

3. Properly set-up arc welding equipment for use for all three arc welding processes; SMAW, GMAW and GTAW.

Matched Outcomes

4. Run a bead in the flat position with OFW, SMAW, GMAW and GTAW processes.

Matched Outcomes

5. Weld a butt joint in the flat position achieving 100% penetration with OFW, GTAW, GMAW and SMAW processes.

Matched Outcomes

6. Weld a tee joint in the flat position with the GTAW, OFW, GMAW and SMAW processes.

Matched Outcomes

7. Weld a lap joint in the flat position with the OFW, GTAW, GMAW, and SMAW processes.

Matched Outcomes

8. Identify at least five common welding electrodes.

Matched Outcomes

9. Oxy-fuel cut (OFC) a straight cut, a beveled cut and a circular cut on 1/4" mild steel.

Matched Outcomes

New Resources for Course

Course Textbooks/Resources

- Textbooks
- 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>Jul 14, 2011</i>
Department Chair/Area Director: <i>Glenn Kay II</i>	<i>Recommend Approval</i>	<i>Oct 05, 2011</i>
Dean: <i>Ross Gordon</i>	<i>Recommend Approval</i>	<i>Oct 18, 2011</i>
Vice President for Instruction: <i>Stuart Blacklaw</i>	<i>Approve</i>	<i>Nov 15, 2011</i>