

Washtenaw Community College Comprehensive Report

UAT 284 Methods in Teaching Gas Metal Arc Welding (UA 8013)

Effective Term: Spring/Summer 2025

Course Cover

College: Advanced Technologies and Public Service Careers

Division: Advanced Technologies and Public Service Careers

Department: United Association Department (UAT Only)

Discipline: United Association Training

Course Number: 284

Org Number: 28200

Full Course Title: Methods in Teaching Gas Metal Arc Welding (UA 8013)

Transcript Title: Teaching Gas Metal Arc Welding

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 title

Course description

Outcomes/Assessment

Objectives/Evaluation

Rationale: Course title change and update to reflect current trends and technology of teaching GMAW welding.

Proposed Start Semester: Spring/Summer 2025

Course Description: In this course, students will learn about methods of teaching the techniques of Gas Metal Arc Welding (GMAW). Safety and set-up, as well as minor maintenance and repair of GMAW equipment will be emphasized. Students will learn troubleshooting techniques as well as how to select project consumables and the proper gases. Hands-on welding instruction demonstrations will be given on carbon steel and stainless-steel pipe in multiple positions. Specialized applications utilizing the current technology of flux core, metal core, aluminum, stainless and pulse Metal Inert Gas (MIG) will also be presented and discussed. Students will utilize these techniques and resources or present a lesson plan for training at their local Training Centers. Limited to United Association program participants.

Course Credit Hours

Variable hours: No

Credits: 1.5

The following Lecture Hour fields are not divisible by 15: Student Min ,Instructor Min

Lecture Hours: Instructor: 22.5 Student: 22.5

The following Lab fields are not divisible by 15: Student Min, Instructor Min

Lab: Instructor: 1.5 Student: 1.5

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 24 Student: 24

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

Below College Level Pre-Reqs

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Demonstrate methods of teaching the central concepts and skills of gas metal arc welding utilizing UA approved materials.

Assessment 1

Assessment Tool: Outcome-related demonstration

Assessment Date: Spring/Summer 2025

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed 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: U.A. Instructors

2. Demonstrate teaching a lesson plan for maintenance and repair procedures related to gas metal arc welding.

Assessment 1

Assessment Tool: Outcome-related skills demonstration

Assessment Date: Spring/Summer 2025

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed 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: U.A. Instructors

3. Present a lesson plan for a GMAW topic to a classroom audience.

Assessment 1

Assessment Tool: Outcome-related presentation

Assessment Date: Spring/Summer 2025

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed 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: U.A. Instructors

Course Objectives

1. Identify how to set up gas metal arc welding.
2. Recognize the gas metal arc welding parts and their functions.
3. Troubleshoot and weld on different materials.
4. Discuss proper teaching techniques for the GMAW process.

5. Identify GMAW application methods.
6. Discuss various contexts in which GMAW techniques are applied.
7. Explain the gases used in GMAW welding and their effects on materials and piping systems.
8. Describe various welding symbols and when they are used.
9. Identify issues and problems associated with teaching the GMAW process.
10. Interpret industry safety standards and personal protective equipment (PPE) related to GMAW.
11. Explain common process malfunctions.
12. Integrate knowledge and skills related to gas metal arc welding in an instructional format.
13. Create a lesson plan to present in front of the class for student critique.
14. Discuss resources that can be used to teach GMAW at students' local Training Centers.

New Resources for Course

Course Textbooks/Resources

Textbooks

American Technical Publishers . *Welding Practices & Procedures for the Pipe Trades*, ed. American Technical Publisher , 2016, ISBN: 0826929834.

Manuals

Periodicals

Software

Equipment/Facilities

Data projector/computer

Other: 15 GMAW booths

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer:		
<i>Tony Esposito</i>	<i>Faculty Preparer</i>	<i>Jan 28, 2025</i>
Department Chair/Area Director:		
<i>Marilyn Donham</i>	<i>Recommend Approval</i>	<i>Jan 30, 2025</i>
Dean:		
<i>Eva Samulski</i>	<i>Recommend Approval</i>	<i>Jan 30, 2025</i>
Curriculum Committee Chair:		
<i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Jun 04, 2025</i>
Assessment Committee Chair:		
<i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Jun 09, 2025</i>
Vice President for Instruction:		
<i>Brandon Tucker</i>	<i>Approve</i>	<i>Jun 10, 2025</i>

Washtenaw Community College Comprehensive Report

UAT 284 Gas Metal Arc Welding Effective Term: Spring/Summer 2014

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: United Association Department

Discipline: United Association Training

Course Number: 284

Org Number: 28200

Full Course Title: Gas Metal Arc Welding

Transcript Title: Gas Metal Arc Welding

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Web Page

Reason for Submission: Three Year Review / Assessment Report

Change Information:

Course description

Credit hours

Total Contact Hours

Outcomes/Assessment

Objectives/Evaluation

Rationale: Course update

Proposed Start Semester: Spring/Summer 2014

Course Description: In this course, students will learn about methods of teaching the techniques of gas metal arc welding (GMAW). Safety, set-up and minor maintenance and repair of GMAW equipment, selection of project consumables, selection of the proper gases and troubleshooting techniques will be emphasized. Hands-on welding instruction demonstrations will be given on plate and pipe in all positions. Specialized applications of flux core, metal core, aluminum and pulse MIG will also be presented. Limited to United Association program participants.

Course Credit Hours

Variable hours: No

Credits: 1

Lecture Hours: Instructor: 15 Student: 15

The following Lab fields are not divisible by 15: Student Min, Instructor Min

Lab: Instructor: 5 Student: 5

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 20 Student: 20

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

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Demonstrate methods of teaching the central concepts and skills of gas metal arc welding utilizing UA approved materials.

Assessment 1

Assessment Tool: Presentation

Assessment Date: Spring/Summer 2014

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: departmentally-developed rubric

Standard of success to be used for this assessment: 75% of students will achieve 75% or above.

Who will score and analyze the data: Departmental faculty

2. Demonstrate teaching practicum on the proper maintenance and repair procedures related to teaching gas metal arc welding.

Assessment 1

Assessment Tool: Skill assessment

Assessment Date: Spring/Summer 2014

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 75% of students will achieve 75% or above.

Who will score and analyze the data: Departmental faculty

3. Construct and present a lecture about a GMAW topic and present it to a class.

Assessment 1

Assessment Tool: Presentation

Assessment Date: Spring/Summer 2014

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 75% of students will achieve 75% or above.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Identify how to set up gas metal arc welding.

Matched Outcomes

2. Recognize the gas metal arc welding parts and their functions.

Matched Outcomes

3. Integrate knowledge and skills related to gas metal arc welding in a very usable way.

Matched Outcomes

4. Demonstrate competencies to troubleshoot and weld on different materials.

Matched Outcomes

5. Demonstrate appropriate use and knowledge of course materials.

Matched Outcomes

6. Discuss proper teaching techniques for the GMAW process.
Matched Outcomes
7. Identify proper GMAW application methods.
Matched Outcomes
8. Explain when to use various GMAW techniques.
Matched Outcomes
9. Explain welding gases used and which materials they are best suited for.
Matched Outcomes
10. Describe various welding symbols and when they are used.
Matched Outcomes
11. Identify learning problems associated with teaching the GMAW process.
Matched Outcomes
12. Interpret industry safety standards related to GMAW.
Matched Outcomes

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Data projector/computer
Other: 15 GMAW booths

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Amanda Scheffler</i>	<i>Faculty Preparer</i>	<i>Jun 27, 2013</i>
Department Chair/Area Director: <i>Scott Klapper</i>	<i>Recommend Approval</i>	<i>Feb 03, 2014</i>
Dean: <i>Marilyn Donham</i>	<i>Recommend Approval</i>	<i>Feb 05, 2014</i>
Vice President for Instruction: <i>Bill Abernethy</i>	<i>Approve</i>	<i>Apr 21, 2014</i>