

**Western Iowa Tech Community College
Course Outline of Record**

Date: 09/22/2014

Prefix & No.: WEL 422 Course Title: GMAW for Production

Semester **Credit** Hours: 4.00

Lecture **Contact** Hours per Semester: 8.00

Lab **Contact** Hours per Semester: 112.00

Clinical **Contact** Hours per Semester: 0.00

OJT or Internship **Contact** Hours per Semester:

Course/Lab Fee: Yes No

Pre and Post Assessments: __

Course Description

This course combines lecture and lab activities to present the Gas Metal Arc welding (MIG) process used extensively by industry. A continuation of Intro to GMAW, WEL 423, students learn out of position welds using hands-on applications, metal transfer concepts, GMAW equipment maintenance, welding procedures, out of position welding, and safety.

Prerequisite: WEL 423 Intro to GMAW

Corequisite: None

Course Needs Statement

This course was developed through the DACUM process to meet the local industry needs and national accreditation requirements for WITCC welding students.

Required Textbooks and/or materials

Yes No Other

Course Objectives:

The course will provide information which should enable the student to:

1. Safely operate MIG welding equipment
2. Identify and use various types of metal transfer
3. Maintain MIG welding equipment
4. Select proper filler metals
5. Select proper shielding gases
6. Set welding parameters per welding procedures
7. Produce sound welds out of position using a MIG welder
8. Weld ferrous metals
9. Demonstrate the skills necessary to obtain certification per the American Welding Society D1.1 welding code

Content Outline

- I. Safety in MIG Welding
 - A. Eye protection
 - B. Clothing
 - C. Electrical shock
 - D. Hazardous fumes
- II. Equipment Maintenance
 - A. Power Supplies
 - B. Wire Feeder
 - C. MIG Guns
 - D. Water Supplies
- III. Filler Metals
 - A. Carbon Steels
 - B. Alloy Steels
 - C. Stainless Steel
 - D. Aluminum

Assessment

Course Competencies

At the conclusion of the course, the student will be able to:

1. Observe all safety procedures of MIG welding
2. Identify various types of MIG welding
3. Determine the type of metal transfer to be used
4. Determine the type of filler wire and shielding gas for a given task
5. Set up a MIG welding station
6. Adjust machine for short arc welding
7. Adjust machine for spray arc welding
8. Adjust machine for globular transfer
9. Diagnose equipment problems
10. Maintain MIG welding equipment
11. Produce out of position MIG welds that meet AWS D1.1 inspection standards

Addendum

Prefix & No.: WEL 422 **Course Title:** GMAW for Production

Key words:

Required Textbooks and/or Materials

Title: Welding Principles and Applications

Author: Jeffus & Johnson

Edition: Current

Publisher: Delmar

ISBN-13:

ISBN-10:

Other Materials: Safety glasses, gloves, pliers, and leathers

Course/Lab Fee: \$0.00

Rationale (usage) for lab fees:

Additional Information:

Competencies According AWS Standards

- I. ____ Multi Pass 5/8" Fillet Horizontal (2F)
- II. ____ Tee Joint 3/16" Fillet Vertical Up (3F)
- III. ____ Tee Joint 3/16" Fillet Overhead (4F)
- IV. ____ Tee Joint 3/16" Fillet Pulse (2F)
- V. ____ V Groove 3/8" Plate Flat (1G) (cert practice)

Common Final: Yes No

See Division Chair for facility and equipment needs.

Reminder: Each Course Outline of Record is expected to be reviewed every five (5) years.

Attached Files:

[Competencies According to AWS Standards](#)