

# Minnesota State College Southeast

## **BIKE 1010: Oxy-Fuel Welding, GMAW, Plasma and Flame Cutting, and Brazing for Bikes**

### **A. COURSE DESCRIPTION**

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course will introduce the safety rules for the welding lab. This course will cover the issues with dealing with ultraviolet rays, burns, fumes, and electrical hazards. This course will also introduce the print symbols and terminology used in fabricating and welding basic joints that are commonly seen on blueprints. The student will be introduced to the four basic welding processes: gas (oxyacetylene), arc (shielded metal arc welding), MIG (gas metal arc), and TIG (gas tungsten arc) welding. The student will learn proper set up and operating procedures through classroom demonstrations. Special emphasis is placed on safety principles. Theory and operations of shielded metal arc welding equipment will also be covered. Emphasis is on safety, machine settings, and filler metals. Students will also develop a proficiency in theory and operation of shielded metal arc and gas metal arc welding in flat welding position, and horizontal welding position. Students will be introduced to Oxy/Fuel and Plasma metal cutting. Students will also be introduced to metal joining using brazing. (Prerequisite: none) (3 credits: 2 lecture/1 lab)

**B. COURSE EFFECTIVE DATES:** 02/27/2018 - Present

### **C. OUTLINE OF MAJOR CONTENT AREAS**

1. Demonstrate safe operation in a welding shop
2. Identify, explain and demonstrate basic welding concepts
3. Select the proper filler metal to weld materials
4. How to use gas-welding equipment
5. How to cut steel with oxy/fuel and Plasma cutting equipment
6. How to weld steel with Shielded Metal Arc and Gas Metal Arc Welding
7. How to join metal parts using brazing process

#### **D. LEARNING OUTCOMES (General)**

1. Demonstrate proper welder safety in a lab environment
2. Demonstrate knowledge of gas-welding (oxyacetylene) welding process
3. Demonstrate knowledge of SMAW (stick) welding process
4. Demonstrate knowledge of GMAW (MIG) welding process
5. Demonstrate knowledge of brazing techniques
6. Demonstrate proper welding technique in flat and horizontal position using the Shielded Metal Arc Welding process
7. Demonstrate safety in use of material cutting equipment
8. Demonstrate set-up and use of an Oxy/Fuel and Plasma cutting torches
9. Demonstrate proper welding technique in flat and horizontal position using the Gas Metal Arc Welding process
10. Demonstrate knowledge of joining parts using brazing process
11. Interpret an industrial drawing with welding symbols
12. Demonstrate fillet, lap, and groove joint assembly
13. Demonstrate proper preparation and welding for a given weldment
14. Explain what makes a weld aesthetically appealing and what does not

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted