LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:
This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore, http://www.labette.edu/bookstore, for the required texts for this class.

COURSE NUMBER: WELD 160

COURSE TITLE: Gas Metal Arc Welding

SEMESTER CREDIT HOURS: 3

DEPARTMENT: Welding

DIVISION: Career Technical Education

PREREQUISITES: None

REVISION DATE: 8/25/17

COURSE DESCRIPTION:
This course is a lab course designed to give students practical work experience in Gas Metal Arc Welding. Students will study the various components of this welding process, will learn to properly set up and operate MIG welding equipment to weld 1G position and produce quality pipe welds.

COURSE OUTCOMES AND COMPETENCIES:
Students who successfully complete this course will be able to:

1. The student will be able to explain gas metal arc welding process (GMAW).
    - Describe different modes of transfer
    - Differentiate between types and uses of current
    - Identify the advantages and disadvantages of GMAW
    - Identify types of welding power sources
    - Identify different components of a GMAW station
    - Describe basic electrical safety

2. The student will be able to demonstrate the safe and correct set up of the GMAW workstation.
    - Demonstrate proper inspection of equipment
    - Demonstrate proper use of PPE

- Demonstrate proper placement of workpiece connection
- Check for proper setup of equipment
- Inspect area for potential hazards/safety issues
- Troubleshoot the GMAW equipment and perform minor maintenance

3. The student will be able to correlate GMAW electrode classifications with base metals and joint criteria

- Explain the AWS electrode nomenclature
- Determine proper electrode for given joint based on material and position of weld
- Determine proper type of electrodes to be used in a variety of industry applications
- Identify proper electrode storage and handling
- Identify consumables

4. The student will be able to demonstrate proper electrode selection and use based on metal types and thicknesses

- Identify consumables for various electrode sizes
- Select the proper electrode type and size relative to metal size, type and thickness
- Select the proper electrode type and size based on material specifications

5. The student will be able to build pads of weld beads with selected electrodes in the flat position

- Implement safety procedures and PPE
- Implement proper equipment setup
- Use the proper metal transfer
- Create a pad of beads using GMAW
- Weld exhibits proper uniformity and profile

6. The student will be able to build pads of weld beads with selected electrodes in the horizontal position

- Implement safety procedures and PPE
- Implement proper equipment setup
- Use the proper metal transfer
- Create a pad of beads using GMAW
- Weld exhibits proper uniformity and profile

7. The student will be able to produce basic GMAW welds on selected weld joints

- Implement safety procedures and PPE
- Implement proper equipment setup
- Perform fillet weld in flat position
- Perform a fillet weld in horizontal position
- Perform a groove weld in a flat position
- Perform a groove weld in a horizontal position

- Use tools appropriate for the task

8. The student will be able to conduct visual inspection of GMAW welds
    - Identify common visual discontinuities and defects on welds
    - Determine causes of discontinuities and defects of welds
    - Inspect welds for pass/fail ratings according to industry standards
    - Use appropriate tools for inspection