

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.

<u>COURSE NUMBER:</u>	WELD 130
<u>COURSE TITLE:</u>	Gas Tungsten Arc Welding
<u>SEMESTER CREDIT HOURS:</u>	3
<u>DEPARTMENT:</u>	Welding
<u>DIVISION:</u>	Career Technical Education
<u>REVISION DATE:</u>	8/25/17

COURSE DESCRIPTION:

This course is a lab course designed to give students practical work experience in Gas tungsten Arc Welding (TIG). Students will learn to properly set up and operate TIG welding equipment to weld in all positions on pipe.

COURSE OUTCOMES AND COMPETENCIES:

Students who successfully complete this course will be able to:

1. The student will be able to Explain the gas tungsten arc welding process (TIG)

- Differentiate between types and uses of current
- Identify the advantages and disadvantages of GTAW
- Identify types of welding power sources
- Identify different components of a GTAW workstation
- Describe basic electrical safety

2. The student will be able to demonstrate the safe and correct set up of the (TIG) 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 GTAW equipment and perform minor maintenance

3. The student will be able to relate TIG electrode and filler metal classifications with base metals and joint criteria

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

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

- Use safety hazard precautions and PPE
- Properly prepare the tungsten electrode profile relative to base material
- Perform weld using GTAW process appropriate to electrode size and filler metal size
- Select the proper electrode and filler metal type and size relative to metal size, type and thickness
- Select the proper electrode and filler metal type and size based on material specifications
- Use tools appropriate for the task

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

- Use safety hazard precautions and PPE
- Demonstrate proper equipment setup and troubleshooting
- Create a pad of beads using GTAW process
- Weld exhibits proper uniformity and profile

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

- Use safety hazard precautions and PPE
- Demonstrate proper equipment setup and troubleshooting
- Create a pad of beads using GTAW process
- Weld exhibits proper uniformity and profile

7. The student will be able to perform basic TIG welds on selected weld joints

- Conduct proper base metal preparation
- Use safety hazard precautions and PPE
- Demonstrate proper equipment setup and troubleshooting
- 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 perform visual inspection of TIG 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 tools appropriate for the inspection