

## 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.

<b><u>COURSE NUMBER:</u></b>	WELD 210
<b><u>COURSE TITLE:</u></b>	Advanced Gas Tungsten Arc Welding
<b><u>SEMESTER CREDIT HOURS:</u></b>	4
<b><u>DEPARTMENT:</u></b>	Welding
<b><u>DIVISION:</u></b>	Career Technical Education
<b><u>PREREQUISITES:</u></b>	WELD 130 Gas Tungsten Arc Welding
<b><u>REVISION DATE:</u></b>	8/25/17

### **COURSE DESCRIPTION:**

Through classroom and/or lab/shop learning and assessment activities, students in this course will: explain the gas tungsten arc welding process (GTAW); demonstrate the safe and correct set up of the GTAW workstation; relate GTAW electrode and filler metal classifications with base metals and joint criteria; build proper electrode and filler metal selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes and filler material in the vertical position; build pads of weld beads with selected electrodes and filler material in the overhead position; perform basic GTAW welds on selected weld joints; and perform visual inspection of GTAW welds.

### **COURSE OUTCOMES AND COMPETENCIES:**

**Students who successfully complete this course will be able to:**

1. Demonstrate the gas tungsten arc welding process (GTAW) through instructor provided written or oral evaluation tools.
  - Demonstrate competence through an instructor an instructor-provided written or oral evaluation tool.
  - 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. Demonstrate competence in a lab or shop setting using a GTAW workstation.

- Demonstrate competence in a lab or shop setting using a GTAW 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. Demonstrate competence through written or oral examination and identify electrode classifications.

- Demonstrate competence through written or oral examination.
- 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. Demonstrate competence in a lab or shop setting using GTAW equipment.

- Demonstrate competence in a lab or shop setting.
- Use GTAW equipment.
- Use appropriate tools.
- 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. Demonstrate the ability in vertical position with proper uniformity and profile.

- Demonstrate competence in the lab or shop setting using GTAW equipment.
- 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. Demonstrate competence through selected electrodes and filler material in the overload position.

- Demonstrate competence in the lab or shop setting using GTAW equipment.
- 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. Demonstrate competence through the ability basic GTAW welds on selected joints.

- Demonstrate competence in the lab or shop setting using GTAW equipment.
- Use appropriate tools.
- Conduct proper base metal preparation.
- Use safety hazard precautions and PPE.
- Demonstrate proper equipment setup and troubleshooting.
- Perform fillet weld in vertical position.
- Perform a fillet weld in overhead position.
- Perform a groove weld in a vertical position
- Perform a groove weld in an overhead position.
- Use tools appropriate for the task.

8. Demonstrate the ability of inspection of GTAW welds.

- Demonstrate competence in the lab or shop setting using proper inspection tools.
- 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.