

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 220

COURSE TITLE: Advanced Gas Metal Arc Welding

SEMESTER CREDIT HOURS: 4

DEPARTMENT: Welding

DIVISION: Career Technical Education

PREREQUISITES: WELD 160 Gas Metal Arc Welding

REVISION DATE: 8/25/17

COURSE DESCRIPTION:

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

COURSE OUTCOMES AND COMPETENCIES:

Students who successfully complete this course will be able to:

1. Explain gas metal arc welding process (GMAW).
 - Demonstrate competence through an instructor-provided written or oral evaluation tool.
 - 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. Demonstrate the safe and correct set up of the GMAW workstation.

- Demonstrate competence in the lab or shop setting using a 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. Demonstrate GMAW electrode classifications with base metals and joint criteria

- Demonstrate competence through a written or oral instructor-provided evaluation tool.
- 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. Demonstrate proper electrode selection and use based on metal types and thicknesses

- Demonstrate competence in the lab or shop setting using GMAW equipment.
- 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. Demonstrate ability to build pads of weld beads with selected electrodes in the vertical position

- Demonstrate competence in the lab or shop setting using GMAW equipment.
- 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. Demonstrate the ability to build pads of weld beads with selected electrodes in the overhead position

- Demonstrate competence in the lab or shop setting using GMAW equipment.
- 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. Produce basic GMAW welds on selected weld joints.

- Demonstrate competence in the lab or shop setting using GMAW welding equipment.
- Use appropriate tools.

- Implement safety procedures and PPE.
- Implement proper equipment setup.
- Perform fillet weld in a vertical position.
- Perform a fillet weld in an 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 to conduct visual inspection of GMAW welds.

- Demonstrate competence in the lab or shop setting.
- Use appropriate 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 appropriate tools for inspection.