



Purpose: It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

Course Title - Advance to Gas Metal Arc (MIG) Welding

Course Prefix and Number - WLDG 2447

Department - Welding Technology

Division - Continuing

Course Type: (check one)

Academic General Education Course (from ACGM – but not in WCJC Core)

Academic WCJC Core Course

WECM course (This course is a Special Topics or Unique Needs Course: Y or N)

Semester Credit Hours # : Lecture hours# : Lab/other hours # 4:3:4

Equated Pay hours for course - 5

Course Catalog Description - Advanced topics in Gas Metal Arc Welding (GMAW). Includes welding in various positions and directions.

Demonstrate proficiency in various welding positions on pipe; describe safety rules and equipment use; and describe the effects of welding parameters in GMAW. Weld various joint designs and diagnose welding problems and perform visual inspection.

List Lab/ Other Hours
Lab Hours 4
Clinical Hours
Practicum Hours
Other (list)

Prerequisites/Co requisites - WLDG 1457 or consent of Department Head

Approvals – the contents of this document have been reviewed and are found to be accurate.

Prepared by Roy R. Jones	Signature 	Date 7/14/10
Department Head Roy K. Jones	Signature 	Date 7/14/10
Division Chair David Clayton	Signature 	Date 7/13/10
Vice President of Instruction or Dean of Vocational Instruction Leigh Ann Collins	Signature 	Date 7/14/11



I. Topical Outline – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

Welding 2447 is a required course leading to an Associate of Applied Science Degree, Certificate of Technology, or Occupational Certificate in Gas Shielded Welding.

Course Description: A study of the principles of gas metal arc welding, setup and use of GMAW equipment, and safe use of tool/equipment. Instruction in various joint designs. Laboratory fee required. (128 Contact Hours) (5:3-5)

The course meets for three hours of lecture and five hours of laboratory each week. Upon successful completion of this course, a student is awarded five semester credit hours.

II. Course Learning Outcomes

Course Learning Outcome	Method of Assessment
<p>Upon successful completion of WLDG 1530, the student should be able to:</p> <ol style="list-style-type: none"> 1. Explain shop safety rules, safety rules for tools and equipment, and personal safety rules. *4,6 2. Explain the importance of a Material Safety Data Sheet (MSDS). *1,2,4,5 3. Describe welding positions with various joint designs on plate. *2,4,5 4. Understand testing by visual inspection. *1,4,7 5. Weld various types of structural material and diagnose welding problems and perform visual inspection. *7 6. Calculate the total cost of welding multiple pass tee joints using the GMAW process. *3 <p>The Welding Technology Department does not guarantee that each student will acquire and retain each of the Student Learning Outcomes as listed above.</p>	<p>The student learning activities are designed to lead the student to the successful acquisition of the student learning outcomes. The weekly laboratory assignments correlate to the numbered student learning outcomes. The student will:</p> <ol style="list-style-type: none"> 1. Attend demonstrations of how to safely plan laboratory activities before starting work. 2. Practice 1F (flat) T-joint fillet welds using proper gas and filler material selections. 3. Adjust machine correctly and proceed with 2F (horizontal) T-joint fillet procedures. 4. Adjust machine correctly and proceed 3F (vertical) T-joint fillet procedures. 5. Adjust machine correctly and proceed 4F (overhead) T-joint fillet procedures. 6. Perform 1G flat and 2g horizontal V-butt. 7. Perform 3G vertical V-butt and 4G overhead V-butt.

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

Modern Welding Technology

IV. Suggested Course Maximum - The maximum hours for this class is 160 and the maximum number of students for this class is 15.

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.

Weekly Lecture 1 First day handout and orientation., 2 Handout, Safety, Safety in the Workplace film., 3-6 Module 29207-03-GMAW and FCAW Plate A. Stringer beads, B. Plate Positions, C. Weave beads, D. Bead Sequence, 7 Exam, Module 29207-03, 8,9 Module 29206-03-GMAW-Equipment and Filler Metal. A. Equipment, B. Shielding gases, C. Filler metals, D. Setup, 10 Exam, Module 29206-03, Handout, Visual Inspection, 13,14 Calculating Welding Costs, 15 Review, 16 Final Exam.

Laboratory:

1. 1F flat T-joint 3/8" fillet both sides.
2. 2F horizontal T-joint 3/8" fillet both sides.
3. 3F vertical T-joint 3/8" fillet, up and down.

4. 3F T-joint.
5. 4F T-joint.
6. 4F T-joint.
7. 1G plate.
8. 1G plate.
9. 2G plate.
10. 2G plate.
11. 3G plate.
12. 3G plate.
13. 4G plate.
14. 4G plate.
15. 4G plate.
16. Final Exam

Supplemental Readings: Gas Metal Arc Welding Handbook, by William H. Minnick: Goodheart-Willcox Co., 1988. Gas Metal Arc Welding, Published by Hobart Brothers Co., Troy, Ohio 45373, 1980. Modules and Displays. Handouts.

VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course Student learning outcomes will be measured through the critique of weekly laboratory assignments and through periodic examinations. The final course will be base on the following:

Department Assignments	30%
Laboratory Assignments	50%
Final Exams	20%
	100%

100-90 = A

89-80 = B

79-70 = C

69-60 = D

Below 60 = F

I = Incomplete (to be used in case of emergencies or illness)

W = Student Withdrawal (either by student or by instructor)

VII. Curriculum Checklist

- **Academic General Education Course** (from ACGM – but not in WCJC Core)
No additional documentation needed

- **Academic WCJC Core Course**
Attach the Core Curriculum Checklist, including the following:

- Basic Intellectual Competencies
- Perspectives
- Exemplary Educational Objectives

- **WECM Courses**
If needed, revise the Program SCANS Matrix & Competencies Checklist.