



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 - Advanced Gas Tungsten Arc (GTAW) Welding

Course Prefix and Number - WLDG 2451

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


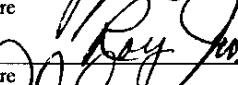
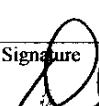
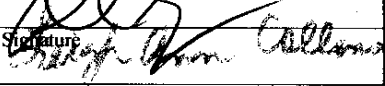
Course Catalog Description - Advanced topics in GTAW welding, including welding in various positions and directions.

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

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

Prerequisites/Co requisites - WLDG 1434 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 R. Jones	Signature 	Date 7/14/10
Division Chair David Clayton	Signature 	Date 7/13/10
Vice President of Instruction or Dean of Vocational Instruction	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 2451 is required course leading to an Associate of Applied Science Degree or to a Certificate of Technology in Combination Pipe Welding or Occupational Certificate in Gas Shielded Welding.

Course Description: Advanced topics in gas tungsten arc welding, including welding in various positions and directions. 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 WLDG2447, the student should be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate the importance in safely planning each procedure before starting work. *1,2,4,5,6 2. Explain the importance of a Material Safety Data Sheet (MSDS). *1,2,4,5 3. Exhibit expertise in various welding positions. *7 4. Describe the effects of welding parameters in GTAW. *2,4,5 5. Weld various joint designs. *7 6. Diagnose welding problems. *4,6 7. Perform visual inspection. *4,6 8. Demonstrate how to write a report using a word processor, saving it to a disk, and printing a final copy. *1,2,3,5,6,7,8 <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 student will:</p> <ol style="list-style-type: none"> 1. Explain shop safety rules, safety rules for tools and equipment, and personal safety rules. 2. Students will be given the necessary information to understand the need for improved equipment and process to meet industry needs. 3. Perform pipe welds in 1G position. 4. Perform pipe welds in 2G position. 5. Perform pipe welds in 5G position. 6. Perform pipe welds in 6G position. 7. Properly prepare, set-up and cut using a plasma cutter.

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.

The short-term course effectiveness will be evaluated by the department chairman via a sample of assigned class work, tests, term papers, photos, pop quizzes, and/or any other items the instructor wishes to use in a display that offers proof that the learning outcomes were accomplished. The long-term course effectiveness will be evaluated via a computer tracking system called the Automated Student and Adult Learner Follow-up System.

Weekly Lecture

Week 1	Orientation and Safety film
2-4	Module 29305-03, GTAW-Carbon Steel Pipe
	A. Positions
	B. ASME and API Codes
	C. Purging Methods
	D. Complete GTAW System
5	Handout and Discussion, Welding Symbols
6,7	Visual Inspection
8	Exam, Module 29305-03
9	Using a Word Processor
	A. Key Board
	B. Programs
10	Module 29205-03, Plasma Cutting
	A. Plasma Theory
11	Exam, Module 29205-03
12,13	Module 29202-03, Reading Welding Detail Drawings
	A. Lines and Sections
	B. Dimensioning
	C. Object Views
	D. Notes and Bills of Material
14,15	Welding Parameters
16	Final Exam, Module 29202-03

Weekly Laboratory

- 1 Shop tour
- 2 Preparation of pipe welds
- 3,4 1G (roll out) pipe welds
- 5,6 Progress to 2G (horizontal) pipe weld
- 7-9 Progress to 5G (vertical) pipe weld
- 10-14 Progress to 6G (45 degree) pipe weld
- 15 Complete all welds
- 16 Final Exam

Supplemental Reading:

- GTAW Handbook, by William H. Minnick: Goodheart-Willcox Company, Inc., 1985.
Welding Processes and Practices, by L. Koellhoffer, et. al., Published by John Wiley and Sons, Inc., 1st Edition, 1988.
Modern Welding Technology, by Howard B. Cary, Published by Prentice Hall, 2nd Edition, 1989.
Welding Principles and Applications, by Larry Jeffus and Harold V. Johnson, Published by Delmar Publishers, Inc., 2nd Edition, 1988.

Trade Magazines and Journals
Welding Design and Fabrication Magazines

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 grade will be based on the following:

Department Assignments	30%
Laboratory Assignments	50%
Final Exam	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.