



**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 Welding (GTAW)

**Course Prefix and Number** - WLDG 2451

**Department** - Welding Technology

**Division** – Vocational Science

**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.

**Prerequisites/Co requisites** – Welding 1434 or Division Chair Approval

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

**Prepared by**      Roy Jones

**Date** 10-19-11

**Reviewed by department head**      Roy Jones

**Date** 10-19-11

**Accuracy verified by Division Chair** Terry David Lynch

**Date** 3/27/2012

**Approved by Dean of Vocational Instruction or  
Vice President of Instruction**      Lac

**Date** 11-9-12



**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):

Learn various shielding gases, methods of metal transfer, and components of a GTAW station, set up a GTAW station and make necessary adjustments such as current, voltage and gas flow necessary to weld on various sizes of pipe, make weld on pipe nipples in 2G, 5G and 6G positions using the uphill, downhill, push and pull methods of welding on mild steel, stainless steel and aluminum.

**II. Course Learning Outcomes**

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

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

- Modern Welding Technology
- 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., 1<sup>st</sup> Edition, 1988.
- Modern Welding Technology, by Howard B. Cary, Published by Prentice Hall, 2<sup>nd</sup> Edition, 1989.
- Welding Principles and Applications, by Larry Jeffus and Harold V. Johnson, Published by Delmar Publishers, Inc., 2<sup>nd</sup> Edition, 1988.

**IV. Suggested Course Maximum - 15**

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

None.

**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**

Department Assignments	30%
Laboratory Assignments	50%
Final Exam	20%
Total	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.