**Course Title** - Advanced Pipe Welding  
**Course Prefix and Number** - WLDG2453  
**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 involving welding of pipe using the shielded metal arc welding (SMAW) process. Topics include electrode selection, equipment setup, and safe shop practices. Emphasis on weld positions 5G and 6G using various electrodes.  
**Prerequisites/Co requisites** - WLDG 1435 or Division Chair approval

**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  

*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.
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):

Discuss three general categories of pipe welds including how they are used and what type of weld root penetration strength they require, compare pipe totalling, discuss advantages of welded pipe, discuss preparation needed before welding pipe, demonstrate how SMAW welds of pipe weld in the 1G, 2G, 5G and 6G positions, describe how a pipe joint is prepared for welding, learn the four most common root defects and the causes of each defect, discuss when and why a backing gas is used, explain the uses of a hot pass, sketch a single V-groove and indicate the location and sequence of welds for each, and make a single V-groove butt welded joint on a pipe in any position.

II. Course Learning Outcomes

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<tr>
<th>Course Learning Outcome</th>
<th>Method of Assessment</th>
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<tr>
<td>1. Explain shop safety rules, safety rules for tools and equipment, and personal safety rules.</td>
<td>1. Attend demonstrations of how to safely plan laboratory activities before starting work.</td>
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<td>2. Describe and setup equipment used in the SMAW process</td>
<td>2. Attend discussion and demonstration sessions that familiarize students with process background and safety procedures.</td>
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<td>3. Properly prepare pipe for welding</td>
<td>3. Prepare pipe coupons according to industry standards for SMAW.</td>
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<td>5. Identify common ferrous and non-ferrous metals</td>
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<td>6. Explain preheating, postheating, and maintaining interpass temperatures</td>
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<td>7. Demonstrate how to write a report using a word processor, saving it to a disk, and printing a final copy</td>
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III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.
Modern Welding Technology

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
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% |
| 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.