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 – Intermediate Shielded Metal Arc Welding (SMAW)
Course Prefix and Number - WLDG 1457
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 - A study of the production of various fillets and groove welds. Preparation of specimens for testing in various positions.

Prerequisites/Co requisites – WLDG 1413, WLDG 1428, WLDG 1430 or approval of the Division Chair.

Prepared by   Aaron Dittmar     Date 7/21/2014
Reviewed by department head   Aaron Dittmar     Date 7/21/2014
Accuracy verified by Division Chair   Tim Guin     Date 7/21/2014
Approved by Dean of Vocational Instruction or Vice President of Instruction   Amy LaPan     Date 8/8/2014
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 the proper use of electrodes and amperage settings for various thicknesses of materials and welding positions, principals of arc welding, and interpret electrode classifications.

II. Course Learning Outcomes

<table>
<thead>
<tr>
<th>Course Learning Outcome</th>
<th>Method of Assessment</th>
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<tr>
<td>-Identify principles of arc welding</td>
<td>1. Attend demonstrations of how to safely plan laboratory activities before starting work.</td>
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<tr>
<td>-Describe arc welding operations of fillet and groove joints</td>
<td>2. Make oxyacetylene cutting and beveling operations using gas equipment in preparation for arc welding.</td>
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<td>-Explain heat treatments of low alloy steels</td>
<td>3. Apply industry standards toward becoming familiar with certification welds. Understand shrinking and distortion problems that occur with certain metals.</td>
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<tr>
<td>-Explain weld size and profiles</td>
<td>4. Prepare coupons, perform F1 (flat) open V-butt root pass, hot pass, filler and cover pass. Select proper electrode for each procedure.</td>
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<tr>
<td>-Prepare test plates</td>
<td>5. Prepare coupons, perform F2 (horizontal) open butt with 1/8&quot; E6010 electrode root pass, hot pass, 3/32&quot; E7018 electrode fill and cap.</td>
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<tr>
<td>-Perform fillet welds in the overhead position</td>
<td>6. Perform F3 (vertical) Tee joint 1/8&quot; E6010 electrode root pass and hot pass welds uphill.</td>
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<tr>
<td>-Perform air carbon arc weld removal</td>
<td>7. Perform F3 (vertical) open butt welds downhill. Select proper electrode for each pass.</td>
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<tr>
<td>-Perform bevel groove welds with backing plates in various positions</td>
<td>8. Perform F4 (overhead) open V-butt. Prepare specimens and test welds.</td>
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<tr>
<td>-Demonstrate use of tools and equipment</td>
<td>9. Demonstrate acquire skill of all lab assignments through a practical final examination.</td>
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<td>-Explain shop safety rules, safety rules for tools and equipment, and personal safety</td>
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<td>-Explain importance of a Material Safety Data sheet (MSDS)</td>
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<td>-Distinguish between qualification and certification procedures</td>
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<td>-Discuss problems of welding discontinues</td>
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<tr>
<td>-Pass a bend and x-ray test as required by AWS Procedures and Standards</td>
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</table>

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.
Modern Welding Technology by Howard B. Cary, Published by Prentice Hall, 2nd Edition 1989


IV. Suggested Course Maximum - 20

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 for emergencies or illness)
W = Student Withdrawal (either by student or instructor)

Department assignments may be composed of a combination of homework assignments, a safety review assignment and test, in class short quizzes on lecture/reading material, and/or short papers and reports.

Laboratory assignments may be composed of a series of assessments on coupon preparations and welds.

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.