

## COURSE OUTCOME MATRIX COURSE SYLLABUS PART 2 of 3

|                         |   |
|-------------------------|---|
| Course Number and Title | WL 262 ADVANCED SHIELDED METAL ARC WELDING (SMAW) |
|-------------------------|---|

|              |   |
|--------------|---|
| Credit Hours | 3 |
|--------------|---|

|                    |  |
|--------------------|--|
| Course Description | Advanced topics are based on accepted welding codes. Training is provided with various electrodes in SWAM processes with open V-groove joints in all positions. The student will describe effects of preheating and post weld heating; explain precautions used when welding various metals and alloys; distinguish between qualification and certification procedures; and discuss problems of welding discontinuities. The student will perform open groove welds with mild steel and low alloy electrodes in all positions. The student will demonstrate safe work practices. |
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|                                       |  |
|---------------------------------------|--|
| Prerequisite(s) and/or Corequisite(s) | WL 104 – Shielded Metal Arc Welding (SMAW) |
|---------------------------------------|--|

**Required Textbooks/References/Course Materials:**

|                             |      |                     |                      |            |
|-----------------------------|------|---------------------|----------------------|------------|
| Modern Welding Lab Workbook | 12th | Althouse, Andrew D. | Goodheart-Wilcox Co. | 1635636876 |
| Modern Welding              | 12th | Althouse, Andrew D. | Goodheart-Wilcox Co. | 1635636868 |

| <b>General Education Outcomes</b> |   |
|-----------------------------------|---|
| 1                                 | Utilize written and verbal language to discuss and comprehend information, incorporating a variety of technologies, such as text, data, and images (written language, verbal language, and information technology).   |
| 2                                 | Identify and interpret relevant information in order to formulate an opinion or conclusion (critical thinking).   |
| 3                                 | Demonstrate and communicate computational methods and mathematical reasoning in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate) (quantitative literacy and fluency). |
| 4                                 | Communicate in appropriate ways with those who are culturally diverse (intercultural competence).   |

| <b>Program/Department Outcomes</b> |   |
|------------------------------------|---|
| 1                                  | Prepare students to become safe and competent welders                       |
| 2                                  | Provide opportunities to possess communication and critical thinking skills |
| 3                                  | Demonstrate responsible professional conduct and behavior                   |
| 4                                  | Effectively communicate   |
| 5                                  |   |
| 6                                  |   |
| 7                                  |   |
| 8                                  |   |
| 9                                  |   |
| 10                                 |   |

|    | Course Outcomes (CO)   | Bloom's Domain for CO (C, A, P), Category, and Level | Program/ Department Outcome(s) | Written Language | Verbal Language | Information Technology | Critical Thinking | Quantitative Literacy and Fluency | Intercultural Competence |
|----|--|--|--------------------------------|------------------|-----------------|------------------------|-------------------|-----------------------------------|--------------------------|
| 1  | Ensure that safety aspects of welding processes and practices are understood and followed                  | C- Understanding (2)                                 | 1,2,3,4                        | 0                | 1               | 0                      | 1                 | 0                                 | 0                        |
| 2  | Demonstrate ability to select the correct electrode current and polarity for welding with the SMAW process | P- Manipulate (2)                                    | 1,2,3,4                        | 0                | 1               | 0                      | 1                 | 1                                 | 0                        |
| 3  | Describe AC and DC welding currents and DC polarity  | C- Understanding (2)                                 | 1,2,3,4                        | 0                | 1               | 0                      | 1                 | 1                                 | 0                        |
| 4  | Demonstrate SMAW 2G, 3G, and 4G open groove weld   | P- Perfect (3)                                       | 1,2,3,4                        | 0                | 0               | 0                      | 1                 | 1                                 | 0                        |
| 5  | Demonstrate SMAW 6G open groove pipe weld  | P- Perfect (3)                                       | 1,2,3,4                        | 0                | 0               | 0                      | 1                 | 1                                 | 0                        |
| 6  | Distinguish between qualification and certification procedures   | C- Understanding (2)                                 | 1,2,3,4                        | 0                | 1               | 0                      | 1                 | 1                                 | 0                        |
| 7  |  |  |                                |                  |                 |                        |                   |                                   |                          |
| 8  |  |  |                                |                  |                 |                        |                   |                                   |                          |
| 9  |  |  |                                |                  |                 |                        |                   |                                   |                          |
| 10 |  |  |                                |                  |                 |                        |                   |                                   |                          |

Bloom's Domain Legend

C = Cognitive  
A = Affective  
P = Psychomotor

General Education Outcome Legend

2 = Included and Measurable  
1 = Introduced and/or Minimally Addressed and Not Measurable  
0 = Not included

Approved: May 2021  
Reviewed: November 11, 2021