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| 1. Title | Perform manual metal arc welding (MMAW) / shielded metal arc welding (SMAW) on different kinds of steel according to drawings | | |
| 2. Code | EMCUIN321A | | |
| 3. Range | Perform general MMAW/SMAW tasks for common carbon steel, high carbon steel or stainless steel, according to drawings, at electrical and mechanical welding workshops or work sites. | | |
| 4. Level | 3 | | |
| 5. Credits | 4 | | |
| 6. Competency | | | <u>Performance Requirements</u> |
| | 6.1 | Preparations for MMAW/SMAW | ♦ Read the drawings correctly (including symbolisation of welding symbols and welding processes)<br>♦ Understand the code of safety for MMAW/SMAW<br>♦ Understand the application of different electrodes<br>♦ Understand technical requirements of different kinds of steel on different electrodes<br>♦ Understand the classification of weld examination<br>♦ Understand the mechanical properties of metals<br>♦ Understand weld defects such as undercut, overlap, porosities, cracks and slag inclusions |
| | 6.2 | Perform MMAW/SMAW according to drawings | ♦ Estimate the impact of welding procedure on the dimensions of work piece<br>♦ Perform assembly ( including root opening, tack weld and anti-distortion procedure) according to the drawing<br>♦ Inspect the dimensions of weld and surface weld defects<br>♦ Select electrodes according to the properties of steels<br>♦ Use different electrodes for welding<br>♦ Perform welding tasks according to the properties of different kinds of steel |
| | 6.3 | Professionalism in MMAW/ SMAW | ♦ Perform MMAW/ SMAW tasks according to relevant safety guidelines and code of practice |

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| 7. Assessment Criteria | The integrated outcome requirement of this unit of competency is:<br>(i) Capable to follow the safety instructions and code of practice to apply MMAW/ SMAW in ne-side full-penetration welding at flat position, at horizontal position, at vertical up position and at overhead position, according to drawings, on different kinds of steel;<br>(ii) Capable to apply MMAW/ SMAW in fillet welding at flat position, at horizontal position, at vertical up position, at vertical down position and at overhead position, according to drawings, on different kinds of steel; and<br>(iii) Capable to point out the classification, specification and application of different electrodes and to select proper electrodes according to the properties of different kinds of steel. |
| 8. Remarks | This unit of competency is suitable for enhancing the competency of electrical and mechanical welding practitioners. The credit value of this unit of competency is set on the presumption that the person already possesses the competency of EMCUIN225A “Basic manual metal arc welding (MMAW)/shielded metal arc welding (SMAW)”. |