1. Title	Perform tungsten inert gas (TIG) / gas tungsten arc welding (GTAW) at specified positions
2. Code	EMCUIN317A
3. Range	Perform TIG/GTAW tasks at specified positions for parent materials like carbon steel, stainless steel and aluminum alloy, in electrical and mechanical welding workshops or work sites.
4. Level	3
5. Credits	5
6. Competency	<u>Performance Requirements</u> 6.1 Preparations for TIG/GTAW ♦ Understand various functions of main TIG/GTAW equipment ♦ Understand the classification, specifications and standards of tungsten electrode ♦ Understand the impact of TIG/GTAW parameters such as current and gas flowrate, welding speed, end shape of tungsten electrode, protective gas and diameter of gas nozzle ♦ Understand the weldability of aluminium, stainless steel and their alloys ♦ Understand weld defects ♦ Understand weld joints ♦ Understand how to avoid weld distortion ♦ Understand code of practice for TIG/GTAW 6.2 Apply TIG/GTAW ♦ Apply TIG/GTAW techniques in the following tasks: • Perform square edge butt weld at horizontal positions and at vertical-up position • Perform lap weld at horizontal position and at vertical-up position • Perform fillet weld at horizontal position and at vertical-up position • Perform butt weld for aluminium and stainless steel at horizontal position and at flat position • Perform lap weld for aluminium and stainless steel at horizontal position and at flat position • Perform fillet weld for aluminium and stainless steel at horizontal position and at flat position • Perform square edge butt weld at vertical-up position and at overhead position • Perform lap weld at vertical-up position and at overhead position • Perform fillet weld at vertical-up position and at overhead position • Perform one side full-penetration butt weld on pipe at fixed position of 45 degrees to horizontal

7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to complete TIG/GTAW tasks for parent materials like carbon steel, stainless steel and aluminum alloy, at specified positions by different jointing methods, without causing obvious surface weld defects; and (ii) Capable to perform TIG/GTAW tasks safely.
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses the competency of EMCUIN212A “Basic tungsten inert gas (TIG) / gas tungsten arc welding (GTAW)”.