

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	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Preparations for TIG/GTAW</p> <ul style="list-style-type: none"> ◆ 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 <p>6.2 Apply TIG/GTAW</p> <ul style="list-style-type: none"> ◆ Apply TIG/GTAW techniques in the following tasks: <ul style="list-style-type: none"> • 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	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> (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	<p>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)”.</p>